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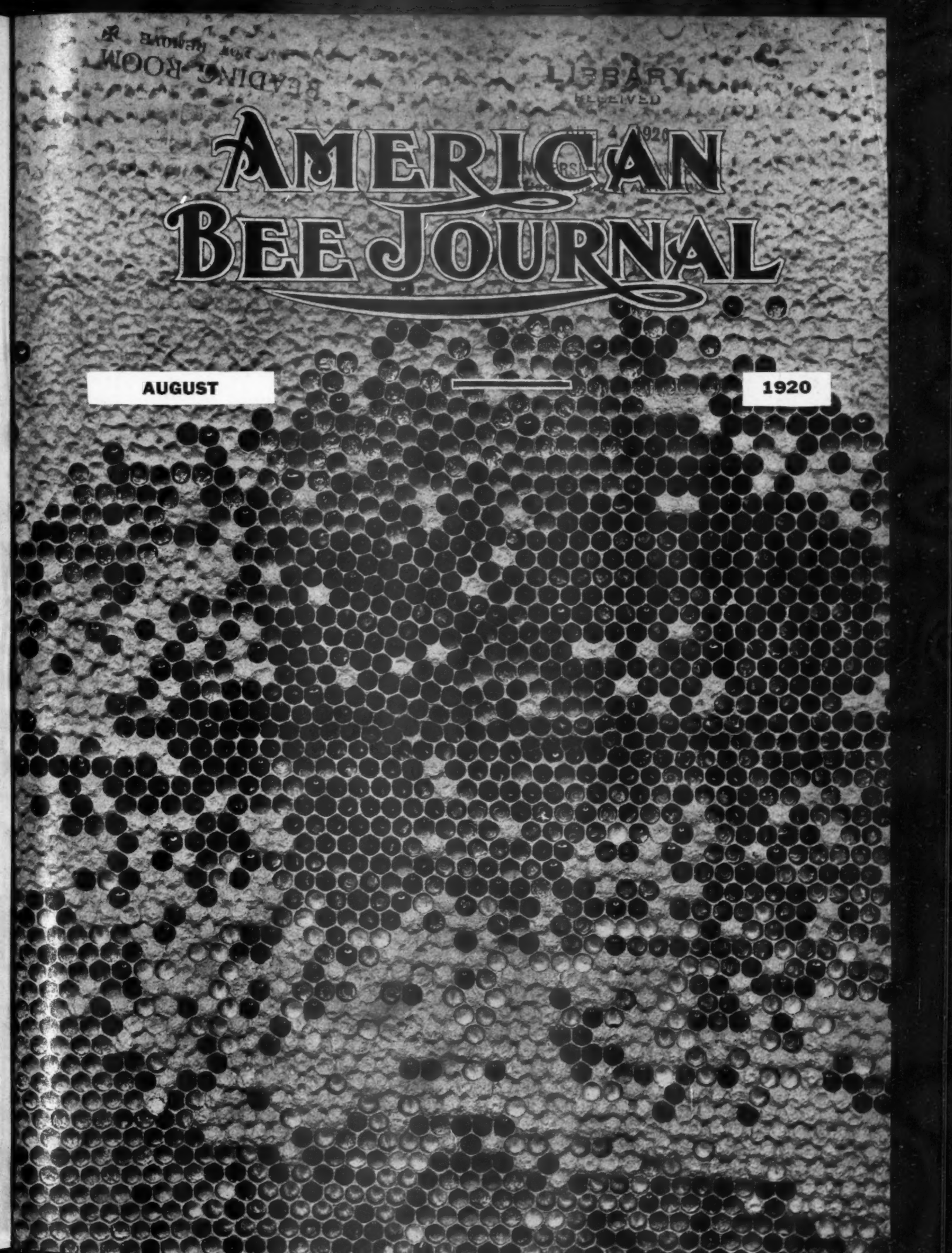
AUGUST 1920



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AMERICAN BEE JOURNAL,
Hamilton, Illinois

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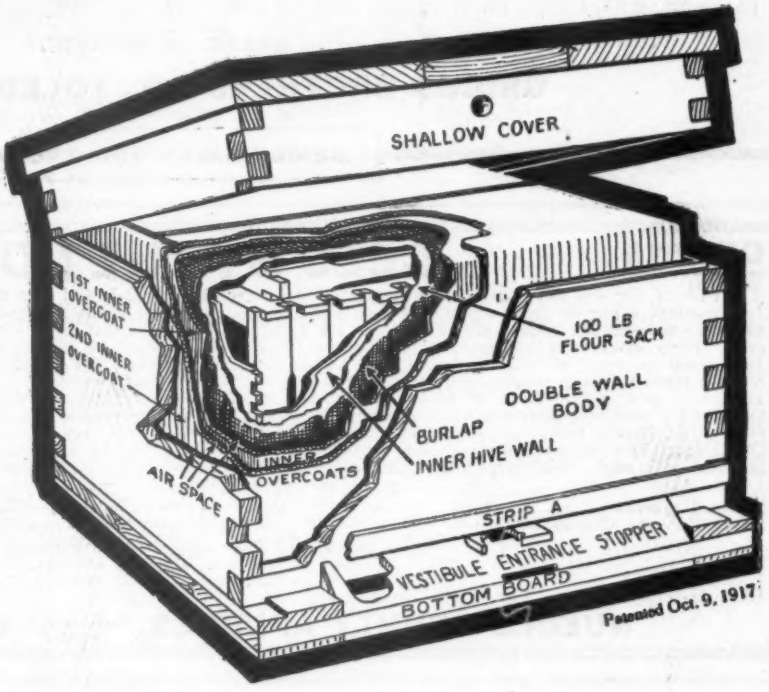
—BY THE—

HIVE WITH AN INNER OVERCOAT



FURNISHED WITH JUMBO DEPTH OR STANDARD HOFFMAN FRAMES

Plan to try out a sample shipment of these hives the coming winter and be convinced of their efficiency and durability. Our winter's loss the past winter of 1919-20 was less than 5 per cent, and this was due to starvation and poor queens. The bees were confined to the hives without a flight for about 120 days. These hives will winter normal colonies perfectly under the most severe conditions. We have many testimonials, too numerous to publish. The two Inner Overcoats with intervening dead air spaces and inner covering or blankets close up about the brood-nest is what does the trick. A person could have any amount of blankets fastened up on the walls of a room and still freeze to death if left in the center of the room without close up protection or insulation. If you can eliminate your winter loses, think what it will mean to you.

Order early, as freight is slow and uncertain and will get more serious as winter approaches. Do not fail to try out a sample shipment. Catalog and special circulars sent on request.

TIN HONEY PACKAGES

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2½ lb., Friction Top cans, crates of 100	10 lb., Friction Top pails, cases of 6
2½ lb., Friction Top cans, crates of 450	10 lb., Friction Top pails, crates of 100
5 lb., Friction Top pails, crates of 12	60 lb., case, in cases of 1 and 2
5 lb., Friction Top pails, crates of 100	60 lb., cans in crates of 24 and 50

Ask for our special money-saving prices, stating quantity wanted.

A. G. WOODMAN CO.

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"GRIGGS SAVES YOU FREIGHT"

TOLEDO

NOW FOR THE 1920 HONEY CROP **We will buy it, both comb and extracted**

We want especially White Orange, White Sage, White Clover, Basswood, Raspberry.
Write us what you have, sending samples, and prices asked, in first letter.

SECOND-HAND 60-Lb. CANS

These cans used only once, packed in good cases. 10 cases, 70c; 50 to 100 cases, 65c; 100 to 500, 60c.

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GRIGGS BROTHERS CO., TOLEDO, OHIO DEPT. 24

"GRIGGS SAVES YOU FREIGHT"

QUEENS **BEES BY THE POUND** **QUEENS**

The rush of our bee shipping season will practically be over by July 1st; will then be in position to take care of your QUEEN orders. Just received a picture from a party showing a colony built up from about 2 pounds of bees and a queen last spring (1919) and at that time weighed 330 pounds gross; others in the yard did better than that one. We have had colonies here gather 400 pounds spring crop. Party wrote from Chicago: "The shipment of bees was received on May 7, this year; hived same day; did not examine until 18th, when we found all queens accepted and had laid in three frames. We greatly appreciate receiving such good grade of bees and hope to favor you with larger orders in the future." Another from Nebraska: "Wish to tell you how well pleased I am with the business done with you. Some of the 50 packages had less than 100 dead bees in them. Those queens of yours are the best uniform QUEENS I have ever received, What is your price on 200 two-pound packages with queens for spring, 1921?"
Our QUEENS are hardy, gentle Italians; they throw bees that fill the supers. GUARANTEE safe arrival and satisfaction on QUEENS. With my method of feeding, can ship bees successfully in July and August. Get a few packages and build them for the fall flow or winter. Send for FREE Circular giving reference, prices by parcel post, nuclei, guarantee, etc.

	1	6	12	50	100		1	6	12	50
Untested Queens	$1.50	$7.50	$13.50	$48.00	$95.00	Tested Queens	2.50	13.50	27.00	110.00
Select Untested Queens	1.65	8.25	14.85	52.80	104.50	Select Tested Queens	3.00	16.20		

1 pound package bees, $2.40; 25 or more, $2.16 each
2 pound package bees, $4.25; 25 or more, $3.83 each
3 pound package bees, $6.25; 25 or more, $5.62 each

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES, E. B. AULT, Prop. **CALALLEN, TEXAS**

HONEY CANS

Several cars just unloaded at our Ogden, Utah, and Idaho Falls, Idaho, warehouses—more coming. We have anticipated the heavy demand and can fill your orders promptly. Avoid congested supers and loss of honey by ordering early.

SUPERIOR FOUNDATION

We are keeping pace with the enormous demand. For real quality specify "SUPERIOR" Foundation. If your dealer cannot supply you, write us for special prices.

BEESWAX

We are still paying top prices.

"Everything in Bee Supplies."

SUPERIOR HONEY CO., Ogden, Utah
(Manufacturers of Weed Process Foundation)

THREE-BAND ITALIANS
Satisfaction Guaranteed

Untested $1.00 each, $10.00 doz., $70.00 per 100
Tested $2.25 each, $24.00 doz.
Breeders $5.00 each.

No more nuclei for sale this season.

IRISH BROS., DOCTORTOWN, GA.

HAND-MOORE QUEENS

How many of you, let me see, have tested out the Hand-Moore bee? Our bees get honey by the ton, and honeys what brings the mon.' So if you want your honest share, and are not content with just the tare. Buy Hand-Moore queens, that's what I say, and do it, yes, and right away.

Untested $1.50 each; 6, $8.00; 12, $15.00.

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CLARION, MICH.

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Now is the time to create a permanent demand for honey. A distinctive label will help to attract the consumer to your product. There are none better than turned out by our shop. Send for our new catalog of latest designs.

STATIONERY

Attractive printed matter will help your business. The printer in charge of our plant devotes his entire time to printing for beekeepers. Anything in the line of printed matter for beekeepers. Best quality, prompt service, and satisfied customers keep our shop busy.

AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

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Buy Lewis "Beeware" in August
Get an Early Order Discount of 9%
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Cash Must Accompany Such Orders

This offer gives you an opportunity to save more money than the interest on a loan for the amount at your bank. It also enables us to avoid a "peak" of production load, with delays, in the next honey season

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AMERICAN BEE JOURNAL

VOL. LX—NO. 8 HAMILTON, ILL., AUGUST, 1920 MONTHLY, $1.00 A YEAR

EFFECTIVE INSPECTION

How Indiana Beekeepers Are Co-operating With the State Inspection Service in the Eradication of Foulbrood

BY FRANK C. PELLETT

THE combination of inspection work with educational service offers the best solution of the disease problem. The writer has long been an advocate of educational methods. It was accordingly a great pleasure to join the automobile tour of the Vigo County Beekeepers' Association the first week in June. The Vigo County fellows are a bunch of live wires. The President, William A. Hunter, was for years a carriage manufacturer, but when he caught the bee fever he got it so bad that he decided to give up manufacturing for honey production. Frank Teel, the Vice President, is a retired banker, who takes beekeeping seriously. The Secretary, Q. O. Rainbolt, is one of the liveliest county agents that the writer has run up against.

Vigo County is liberally sprinkled with both American and European foulbrood. To keep bees on a commercial scale, under such conditions, is a strenuous game, and the local beekeepers are determined to eradicate foulbrood, not only from Vigo County, but from surrounding counties as well. The beekeeping tour is an annual affair and everybody who owns bees is invited—yes, urged—to go along, and the members see that sufficient cars are provided to carry all who wish to go. If bee owners are not sufficiently interested to go, the beekeepers schedule a stop with them, so they can hardly escape actual contact with the enthusiastic bunch. An effort is made to locate every colony of bees in the entire area covered, and to make sure that they are properly kept. The tour extends over four days, and they are mighty busy days, indeed. The entire inspection force, from the State Entomologist's office, was present on this tour, which made fast work possible when an apiary was reached.

Every colony of bees was examined and either treated or marked for later treatment, as circumstances determined. The novice who had never seen bees could get a very good idea of the details of practice during the four days, since every operation, from hiving swarms to treating foulbrood, was demonstrated.

Publicity for the affair was not neglected. Mrs. Ann Bowles Wiley, a reporter for the Terre Haute Tribune, and well-known contributor to other publications, was present on the trip, and a movie operator, Mr. Frank Martin, filmed the principal operations. In case any beekeeper in the territory failed to be present or was not visited on the trip, he will see a glowing account in the papers, or the pictures in the local theatre. If anything was overlooked in the way of bringing the matter to public attention, the writer was unable to discover what it was.

The start was rather dismal, for when the time arrived it was raining as though it would never stop. However, a sufficient number to fill several automobiles gathered at the county agents' office, and after waiting several hours for it to stop, started out in the rain.

The first demonstration was trans-

The movie man was wide awake

ferring bees into a good hive. There was much interest in this operation on the part of the novice and skilled beekeeper alike. Fortunately, by this time, it had stopped raining and the movie man was able to operate his machine while the work was in progress.

Big baskets of lunch were brought out at the noon hour and the contents quickly disposed of. There was too much to be done to permit the waste of much time, and the crowd was off to the next stop. An interesting incident of the first day was the cutting of a bee tree. It was a big sugar maple and the bees were entering at a hollow limb about 30 feet above ground. Men with axes, and later with a cross-cut saw made quick work of felling it. Even the reporter lady gave a hand at the saw. When it was down, a section was cut out and that part occupied by the bees was split open. Although the colony was not large, it was transferred to a hive in the approved manner. Here again the movie man was kept busy, even showing the falling of the big tree.

The reporter lady gives a hand at cutting the tree.

At one well-kept farm, a big lot of good equipment was found and many hives filled with combs, but few bees. The old gentleman who owned them had died, and American foulbrood made short work of the neglected bees. Here the inspectors made a big bonfire, burning the moth-eaten combs and inside fixtures, while disinfecting the hives and such equipment as could safely be saved. It was a splendid object lesson on the effect of disease in the apiary.

Beekeepers visited, who had had only box hives last year, had everything in spick and span order this year, with bees in new hives, nicely painted, and in good show condition. One visit, from a crowd like that, is sufficient to start a fellow to keeping bees right or to get out of the business. Only one man on the whole trip failed to offer a cordial welcome. This fellow swore that the whole crowd was a bunch of crooks, and that he had sold all his bees after last year's visit, just to get rid of them. When asked for an explanation of the trouble which his bees had manifested last year, he said there had been a big fight among the drones, which so reduced the bees that they had not done any good.

Transferring the bees from the tree to the hive

Some whose bees were not in good condition joined the crowd and went out to see both well-kept bees and neglected bees, until they were able to see exactly how they should be kept. A delightful hour was spent at St. Mary's of the Woods. Here a good-sized apiary in charge of a Sister past 70 years of age, was found to be in model order. It was an excellent chance to impress upon the novice how bees should be kept. A large poultry farm, at the same institution, attracted much interest on the part of the visitors.

All told, it was a very successful occasion. Not only did it furnish an opportunity for the members of the association to get together for an outing and talkfest, but it had a most wholesome effect upon the class of beekeepers who are hardest to reach —those who, having a few bees, do not take much interest in them. In some cases, it was very plain that the owners of ill-kept apiaries did not enjoy the visit of such a crowd, nor did they exactly relish the comments on the way things were kept. In one apiary, the bees were found with only one super on each hive, jammed full in nearly every case from tulip poplar, and the bees loafing for lack of room to store the incoming honey from clover. The owner would not admit that it would have paid him to put on more supers, as he had kept bees for forty years with only

The inspectors have a bonfire

one super to each hive. To induce such a man to visit apiaries under similar conditions, to see where two or three supers could be filled at the same time, is very effective argument. Wherever the crowd went, the inspectors examined the bees for disease, and the crowd commented freely upon the care or lack of care manifested in the apiary. If things were not right, there was no lack of forthcoming information to put the owner right.

Considering the changes in the apiaries visited for the first time last season, it is very apparent that after two or three more rounds of the region, there will be none but well-kept apiaries. Some tribes of Indians had no laws punishing crime, but those ignoring the ideals of the tribe were shunned and ignored until they usually committed suicide. Thus does human nature react to public sentiment. The Indiana beekeepers propose to make it so unpopular to keep bees shabbily that their owners will either keep them right or dispose of them. In many cases lack of interest is only because the owners have been too closely occupied with other matters to inform themselves. Such often develop into the most careful and enthusiastic beekeepers.

The inspection, in Indiana, is under direction of the State Entomologist, Frank N. Wallace. There are three inspectors, T. C. Johnson, James E. Starkey and C. O. Yost. The demonstration methods were tried out on a small scale two years ago. Results were so encouraging that more extensive trials were given last year, and this season it is the rule, wherever the local organizations are prepared to give sufficient support.

BEEKEEPERS' CHAUTAUQUA

The second annual field meeting and Chautauqua for beekeepers will be held at Madison, Wis., August 16 to 21. Dr. Phillips and George S. Demuth will again be present.

So much interest was manifested in this summer school of beekeeping last year that a good attendance should be assured again this season. Prof. H. F. Wilson, of the State University, will be in charge. He writes that they have planted a garden for the beekeepers so that an abundant supply of vegetables will be available to those who wish to camp and cook their own meals. Professor Wilson has worked hard to advance the interests of beekeeping in Wisconsin, and the summer Chautauquas are well worth while. Those desiring more detailed information regarding the program, etc., should address Professor Wilson at Madison.

BROKEN PACKAGES

By C. A. Ellis

One express man here said to me: "Lots of bees in packages coming now; many of them get out and fly around the room, but none of us get stung."

The point and the pity of this is, "many of them get out."

In a milk sales room, not ten minutes ago, a railway mail clerk told us this: "Just before we left for Boston an expressman threw into our (mail) car a box of bees (he probably thought it was the express car). The box was broken and the bees poured out, hundreds of 'em. We laid low till we got to the middle of the Hudson river, and then, you bet, we kicked that box o' bees into the river." Some beeman's good $5 worth of bees; perhaps a $2.50 queen with 'em.

The point is, the deadly fear of the bees. The light and poorly braced package is another. They should be so strongly braced and nailed that they cannot be broken except with a sledge hammer, and so made that not a bee can sting the hand of the express handlers. Honey comes to me so poorly packed that I'm surprised it is all there.

Albany, N. Y.

These suggestions are good. If the bees are strongly confined, there will be less loss in transit, and less rough handling. Printed directions, in large letters should be pasted on the package. More and more bees are being shipped from one part of the country to the other, and it is necessary to educate those who handle them on the way.—Editor.

Indiana inspection force and officers of the Vigo County Association. Left to right, C. O. Yost, Wm. A. Hunter, Q. O. Rainbolt, James E. Starkey, Frank N. Wallace and T. C. Johnson.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.

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C. P. DADANT ..... Editor
FRANK C. PELLETT ..... Associate Editor
C. C. MILLER ..... Questions Department
MAURICE G. DADANT ..... Business Manager

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THE EDITOR'S VIEWPOINT

A Starvation Swarm

On page 271 of this number, Rev. A. A. Evans gives a very pretty example of devotion on the part of starving bees, showing them as leaving the hive so that the remainder of the colony might have enough to eat.

We know that bees are devoted, but we have never seen an instance of this kind. Yet, why should it not be so? When caged bees arrive from a long trip, short of food, the queen is usually the last one to die. Evidently she is fed by the others to the last drop. We can understand it, since we see bees feeding their queen constantly, as they meet her, in the hive. Skeptics have doubted the bees' devotion and said that the queen outlived the others because she had more powers of endurance, and not because the bees denied themselves to feed her. But when we see their love for her, and the despair which they show when she is lost, we can understand and appreciate their devotion.

Are bees more devoted to their race than the average human being is to his own? Very probably they are. The example of Captain Oates is as fine an illustration as could be given. But we are likely to be selfish while we accuse others of the same fault. The detested German's "Deutchland uber alles" looks monstrous to us. But pretty soon we are ready to cry "America First" and consider that word as a great evidence of devotion.

We are like the bee in the care for our family or country to the exclusion of all others. They certainly give us fine examples of industry and devotion.

Bacillus Pluton Versus Bacillus Alvei

The American and European bacteriologists who read the American Bee Journal are requested to take p rticular note of Dr. White's "Observations on European Foulbrood," concluded in this number. On page 267 (note) Dr. White very plainly advances an explanation of why scientists disagree upon the odor or lack of odor of the so-called European foulbrood. He says: "When the larvæ die Bacillus pluton stops growing, but Bacillus alvei begins to multiply then at a very rapid pace and invades the entire larval remains.

In the first installment of his article (July number, page 226), Dr. White wrote: "The name 'stinking foulbrood' has been used in some countries for the disorder in which Bacillus alvei occurs in large numbers, and 'sour brood' for the one in which Streptococcus apis is present in considerable numbers. The writer wishes to suggest that these are two names for one disease and that the disease is the same as the one for which the name European foulbrood is being used in this country." He goes on to explain that the foul odor which some scientists charge to European foulbrood is to be found when Bacillus alvei is contained in the brood in large numbers.

Evidently, if Dr. White is correct, the stinking odor comes from the larvæ which have been invaded by Bacillus alvei, after death, while those dying from Bacillus pluton give but little odor. This explains, until a better explanation comes, why there is a division of opinion as to whether European foulbrood has, or has not, a marked odor, sufficient to stamp it as "stinking foulbrood." We trust our European friends will seize upon this and verify Dr. White's statements. Every day we gain a little towards the truth. When we remember how many centuries passed before man found out that yellow fever was caused by the bite of a mosquito, we need not be astonished at the length of time it takes to decide what is foulbrood.

Mr. C. P. Dadant,
Hamilton, Ill.

Dear Mr. Dadant:

I wish to say that the manner in which the European foulbrood artic'e is printed is very pleasing. The illustrations have been printed very well. A few typographical errors are noted. Most of these were made by our typist here and overlooked by me when I read the copy. Thinking you might wish to mention some of these at the close of the article, possibly, I am referring to them at this time.

Errata

Page 226, column 2, line 40, for "afterwards" read "after death."

Page 227, column 1, line 6, for "those" read "these."

Page 227, column 1, line 33, for "arena" read "area."

Page 227, column 3, line 5, for "germs" read "queens."

Page 227, in legend to Fig. 5, line 3, for "O" read "Q."

The most important error, of course, is the 4th one mentioned, the others being minor ones and probably are not worthy of mentioning.

Very sincerely,
G. F. WHITE.

Georgia Beekeepers Meet

A drive for the passage and enforcement of a bee disease inspection law was begun by the beekeepers of Georgia at Waycross, Saturday, July 3, when a committee was named to appear before the present session of the Legislature in that State and ask for a law and an appropriation for its regulations.

J. J. Wilder, of Waycross, was named President of the Georgia Beekeepers' Association at a meeting held the same day, attended by 75 beekeepers from throughout the State. After a talk on the advantages of organization and of having apiary inspection service, given by Kennith Hawkins, of the G. B. Lewis Company, the organization was effected. Vice Presidents who were named are: John W. Cash, Bogart; W. C. Barnard, Glenville; A. B. Crenshaw, Pavo; W. H. Young, Bainbridge, and W. L. Wilder, of Macon, each being chosen from a different part of the State to facilitate State-wide organization. The Secretary is Mrs. Madge Merritt, of Brunswick, and the Treasurer is C. H. Herndon, of Waycross.

N. L. Stapleton, of Colquitt, together with President J. J. Wilder, heads the delegation chosen to present the claims of the Association to the Legislature. An attorney pledged himself to prepare their bill and arrangements have been made to have the bill introduced both in the House and Senate. It will be practically a duplicate of the Florida apiary inspection law and will be enforced by the State Entomologist.

American foulbrood has made its appearance in serious infections in northern Georgia near the South Carolina line among some of the best apiaries of the State, and is believed to have been introduced through shipments of nuclei to Georgia from States north. Great confidence was shown in Mr. Wilder, who entertained the visitors at his factory, where dinner was served to all who attended, Mr. Wilder being assisted by his factory workers. The meeting lasted from 10 o'clock in the morning until 6 o'clock at night, and interest never flagged during the entire time. Beekeepers numbering about 20 from various parts of the State were called upon to express their opinion of beekeeping possibilities and methods in various parts of the State. The ownership or control of over 50,000 colonies of bees was represented by the men and women who attended this session.

A Comb of Healthy Brood

Our cover page gives a reproduction of a photo published in October, 1910, on the cover page of this magazine. It was furnished by Mr. Lyman, of Downer's Grove, and can give the beginner a very good idea of healthy brood in all stages. Notice the larvæ coiled at the bottom of the cells, in the center bottom of the picture. Swammerdam compared them to "a dog when going to sleep." In the center of the picture, eggs may be noticed. Near the top, cells containing pollen are shown. The top of the comb shows sealed honey.

No favorable comments may be made about the regularity in the brood in this photo, but it would be impossible to show the different stages in a comb that was filled regularly, by the queen, as the brood would then be almost all of the same age. The variety is here, and the only parts that do not show plainly are the cells, at the edges, which are slightly out of focus.

Florida Beekeeping Course

A course in beekeeping is being given at the University of Florida, at Gainesville. Dr. Frank Stirling, the instructor, reports that "more interest is being shown in this course than in most others." There are 40 students.

The State Plant Board, with headquarters at Gainesville, is in charge of the bee disease law. Correspondence on this matter should be addressed to the "Plant Commissioner" at Gainesville.

Color of Queens

"The color of the queen has no connection with the color of the workers, for there are golden queens which produce dark workers and dark queens which produce very light workers."—(A. Zanini, in the Bee World.) We concur in this statement, although by long protracted selection bright queens producing bright workers are finally secured. When we mentioned to Doolittle that the color of the queen had no importance whatever, he replied: "You like to look at a pretty girl, why not at a pretty queen?"—Editor.

Beekeeping Near Vladivostok

We are in receipt of the following information on beekeeping, in the Valley of the Usuri River, which flows into the Japan Sea at Vladivostok, by a Hungarian officer, who is now a prisoner of war in the Japanese camp at Pervaya-Rietchka, near Vladivostok, Manchuria:

"In gathering information about the conditions of beekeeping at this place and along the Usuri River, I learned that the Langstroth system is widely spread; the hives in use are known as Dadant hives, and alternately I have also found some built on the advice of Dr. C. C. Miller, both with 10 and 14 frames. The bees are harvesting honey from white clover (May 29) which is abundant here. The average production of extracted honey per colony varies from 100 to 150 pounds, though the eason of pasturage is very short, lasting from May to the end of September. The climate, in spring, near the seacoast at Vladivostok, is very unfavorable to the bees. Since the beginning of the two months of my sojourn here, there was scarcely a day without fog, and every other day we are waiting for fine weather."

WILLIAM SLOVIG.

Death of an Italian Apiarist

Dr. Emilio Triaca, whom we met in 1913, at Milan, and who was one of the founders of the Italian Association of Beekeepers, and its Vice President, died at his home, Villa La Calma, near the Lake of Como. He had served as Lieutenant in the Italian army, in the fifties, during the war which liberated the Province of Milan. He was then wounded in the left leg and was a cripple ever after. He held a number of positions of trust in Milan, and was decorated with the medal of military valor. He was 77 years old.

Dr. Triaca was one of the finest and most progressive men among the leading apiarists of Italy. He is regretted by all who knew him.

How Many Eggs May be Laid in Twenty-One Days?

In the question department, the reader will find a reply by Dr. Miller, giving an estimate of the number of eggs a queen may be able to lay in the 21 days which are required for the egg to hatch into a worker bee.

In a private note, Dr. Miller mentions the low estimates of old-time writers on this question, the maximum, given by Donhoff, being 63,000 instead of Dr. Miller's 92,800. It is interesting to read ancient authors on this point; but one must remember that their hives were usually altogether too small for a full test. Hamet, one of the authorities of the middle of the last century, asserts that the queen lays an average of 40,000 to 100,000 eggs **a year.** That is far from our estimates. It is true that he adds that some queens may lay as many as 200.000 to 500,000 in a year. But he tells us also that "during the active laying, she lays eggs from morning till night without interruption." At the rate of 6 eggs per minute, which has often been witnessed, a 14-hour day would give us 5,040 eggs. A 10-hour day would produce 3.600 eggs. But why should we think that she lays only in the day time? Is it not because we have watched her only during the day? The A B C tells us, of a prolific queen, that she "is on the job night and day."

The older writers were still less ambitious than Hamet, as to the fertility of the queen. Wildman, quoting Reaumur, states that **"she may lay 200 eggs in a day."** That would make only 4,200 eggs in 21 days. Colin was a little more liberal, estimating the number of eggs a queen could lay at "not less than 400 to 600 per day." He used very small hives.

Alley wrote that "a queen that will not lay 1,200 eggs in 24 hours is not worth preserving." That is a little better than the old views. But it does not come up to Doolittle, who wrote that he had queens that laid 5,000 eggs for weeks in succession. His description of a "really good queen" was "one that will give us from 3,000 to 4,000 workers every day for a month, previous to the honey harvest. (Scientific Queen-Rearing, page 13). The expressed opinion of this leader among queen-breeders and honey-producers was quite in accord with the experience of Charles Dadant, who found many queens, in actual practice, with large hives, to occupy at least 73,500 cells with brood in 21 days, previous to the honey crop.

Winter Experiments

Reports from beekeepers of great experience, in northern New York, indicate that there is still much to learn in the matter of wintering, in localities where the confinement of the bees is long protracted.

A firm of experienced men, having 419 colonies, wintered in cellars and out-of-doors, both heavily and lightly packed, secured the following results:

No. of colonies in fall	419
Loss	163
Per cent, 39.	
Wintered in cellars	165
Loss	56
Per cent ,34	
Wintered with heavy packing	33
Loss	8
Per cent, 24.	
Wintered with packing on top and sides only	221
Loss	99
Per cent, 45.	

The percentage of loss is great in every case, but largest in the slightly sheltered colonies. Most probably the low quality of the food was the greatest cause of loss, since the colonies were strong at the beginning of winter.

Moral: Let us make sure of stores of high quality before winter.

A Live Organization

We have been favored with a copy of the report of the Aberdeenshire and Kincardineshire Beekeepers' Association for 1919. Judging from this report there must be a very great interest in beekeeping in that part of Scotland. A total of 1,391 members is shown for 1919, and we are informed by letter that the number has already increased to nearly 1,700.

The association has seven touring experts who go about the country assisting beekeepers with their problems. We infer that the touring expert employed by the association works very much like our extension men employed by the Government. The report contains something over 65 pages and contains, besides the names and addresses of members, the reports of the experts, rules and schedules of prizes for the honey show, by-laws of the organization, catalog of books in the library, etc.

Some Observations on European Foulbrood

By G. F. White, Bureau of Entomology, U. S. Dept. Agr., Washington, D. C.

(Concluded from July)

Length of Time the Germ Lives

The germ **Bacillus pluton** grows and multiplies probably only in the stomach of infected bee larvæ, and very little, if any, after the larva dies. Sooner or later, however, it dies if it is not fed again to healthy larvæ. Many experiments were made relative to the amount of heat, drying, sun light, fermentation, putrefaction and carbolic acid the germ will withstand. The periods it will live in honey, pollen, and in decaying larvæ were also subjects for study. In performing the experiments, disease material containing the germ was subjected to these various environments, respectively, and then was fed to healthy brood to determine when the germs were destroyed.

The approximate period the germ of European foulbrood will remain alive in various environments may be estimated from the following results:

When the germ was placed in water and heated for 10 minutes it required 146 degrees F. to destroy it.

When it was heated in honey for 10 minutes it required 175 degrees F. to destroy it.

The stomach contents of diseased larvæ were smeared on glass slides and allowed to dry. When these were shielded from the light the germ lived about a year.

When similar smears were exposed to the rays of the sun the germ was destroyed in about 3 hours.

When placed in water it was destroyed by the sun in about 6 hours.

When in honey the sun destroyed it in about 4 hours.

It was destroyed in a 10 per cent sugar solution fermenting at room temperature within 3 weeks.

It was still alive after one month in a 20 per cent honey solution fermenting at outdoor temperature.

In a putrefying solution at room temperature it was destroyed in about 35 days.

In a similar solution at outdoor temperature it was still alive after 40 days. The time required to destroy it was not determined.

Placed in honey and kept at room temperature the germ died in from 3 to 7 months.

Mixed with pollen, the germ lived for more than 7 months at room temperature. The maximum period has not been determined.

The germ lives for a number of days in a half per cent aqueous solution of carbolic acid, but is killed rather quickly by strengths ordinarily used as a disinfectant.

Other things being equal, the germs live longer in a cool environment than in a warm one.

It will be observed from these facts that the germ of European foulbrood lives only about a year under quite favorable environment; that it is readily destroyed by a number of factors in nature, and by heat and disinfectants.

Spread of European Foulbrood

The discussion of the transmission of any bee disease may be considered under three subdvisions—the spread (1) from diseased larvæ to healthy ones within the same colony. (2)from a diseased colony to a healthy one within the same apiary and (3) from a diseased apiary to a healthy one.

Naturally the germ **Bacillus pluton** must be present in a colony or there can be no European foulbrood in it. The spread of the disease, therefore, involves directly the spread of the germ that causes it. The infected larva is the source for the multiplication of the germ and the adult bees have a tendency to remove these larvæ piecemeal, thus removing the germs. If the disease material is fed to healthy larvæ before the germ dies, the disease will be transmitted; if, on the other hand, it does not reach the stomach of such larvæ before the germ dies, naturally the disease will not be spread. These facts form a good starting point in a consideration of the problem of the spread of the disease.

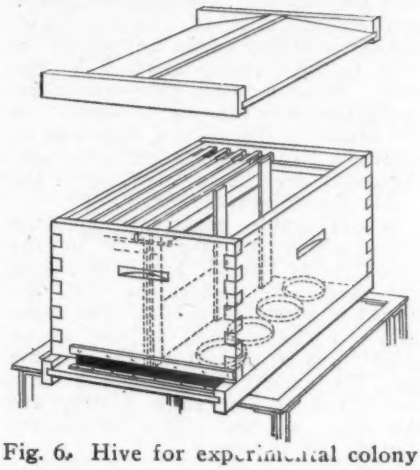


Fig. 6. Hive for experimental colony

Were it possible to trace completely the course of the fragments of larvæ removed, until the disease-producing germ **Bacillus pluton** which they contain was dead, one could describe in considerable detail the mode of transmission of the disease. While to do this is well nigh impossible, much has been done in a more indirect way toward the solution of the problem.

As a result of the removal of the sick and dead larvæ by the adult bees, European foulbrood colonies were found to manifest a marked tendency to recover from the disease. The fragments of larvæ removed are not fed, as a rule, therefore, directly to the brood. Were they stored with the honey, so they would not reach the young feeding brood for a few months, no disease would result, since the germ dies comparatively soon when it is in honey.

Inasmuch as **Bacillus pluton** may remain alive for a considerable period in the scales, it seems quite probable that through them the disease might be carried over a period of months and possibly, at times, over winter. The pollen in European foulbrood colonies might possibly also be a source of infection for a considerable period.

Once carried out of the hive and released from the bees, the germs encounter various agents which tend to destroy them, as drying, sunlight and fermentation. The chance that such germs while alive will be taken up by adult bees and fed to healthy brood,

Fig. 7. Experimental apiary for study of bee diseases

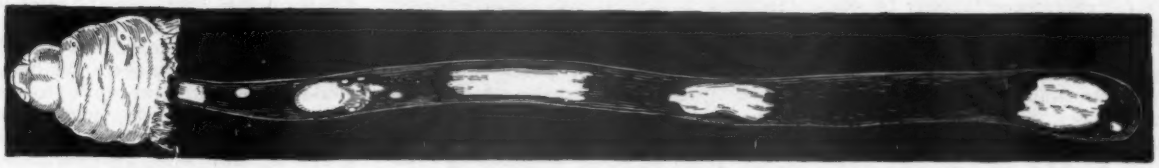


Fig. 9. Stomach contents removed from larva sick of European foulbrood

indeed is comparatively slight. Should they get into the water supply of the bees a possible means for the transmission of the disease would be supplied. The chances would be increased if the body of water is near the apiary, and is a slowly changing one. A colony being weakened by disease becomes a prey for robbers, and at once becomes the source of infection for other colonies of the apiary, and at times, also, for other apiaries. The likelihood of the disease being transmitted by extracted honey has been overestimated at times.

Brood-combs containing brood dead of European foulbrood will transmit the disease by being placed in a healthy colony after being stored over winter at room temperature. The maximum period they will do so has not been determined. Hives that have housed European foulbrood colonies do not seem to be a likely source of infection. Hive tools and the hands or clothing of the apiarist are not to be feared as sources of infection.

Since all of the colonies of the experimental apiary were in the open, the bees having free access to flight, and no spread of the disease from colony to colony was observed, it is evident that the flowers visited by bees from diseased colonies and afterward by those from healthy ones are not a fruitful source of infection. The observation serves to show also that the water supply (no slowly changing body of water was near by) of the bees did not endanger the healthy colonies of the apiary. Since there was no spread of the disease observed, a drifting of bees or the wandering of drones as might have have occurred did not result in any appreciable infection. The observations made during the experiments do not indicate that the disease is likely to be transmitted through the medium of queens.

Diagnosis of European Foulbrood

The death of brood in uncapped cells, the yellow color of larvæ recently dead, the brownish hue of those longer dead, the irregularity of the brood and the absence of the foulbrood odor are symptoms of European foulbrood by which the beekeeper, after a little experience, can diagnose readily, and at the apiary, most cases of the disease.

Both late and early in the course of the disease, however, the diagnosis is frequently not so easy. Late in the disease the bees may have removed most or all of the dead larvæ from the uncapped cells and some of those from the capped ones, leaving only the larger scales that occupy the endwise position in the cell. The number of such scales in a given area of brood-comb, however, is small. While these scales resemble individually those of American foulbrood, they are fewer in number, and when dry are more easily removed. When dry, also, they are more rubberlike* in consistency than are those of the ropy disease. From the gross appearance alone the diagnosis can frequently be made of these cases. In the laboratory it can always be made readily and easily from a suitable sample.†

In European foulbrood a larva, before it dies, manifests symptoms by which an early diagnosis may be made.‡ A pronounced wavelike movement of larvæ strongly suggests the presence of the disease. A yellowish white mass seen through the narrow transparent area (Fig. 5, K) along the median dorsal portion of the body of the larva furnishes positive evidence of European foulbrood (Fig. 5, L). This mass is within the stomach and is made up chiefly of a bacterial growth composed largely of **Bacillus pluton.**

A very satisfactory test and one which may be applied even as early as two days after infection takes place, consists in removing the contents from the stomach of a suspected larva. The larva is removed from the brood-comb and is torn across near the head end, leaving only the contents of the stomach, which tears less easily. By separating the two portions of the larva the stomach contents will be pulled out of the posterior portion and be attached to the anterior one (Fig. 9). The stomach mass is broken into fragments by the slight force necessary to remove it.

Conclusions

European foulbrood is the disease of bees that causes the death of the brood during its uncapped stage.

It occurs in many parts of the United States and at least in Canada, Denmark, England, Germany and Switzerland.

It is frequently referred to by the general terms of "foulbrood." In this country it was called "black brood" for a while. That "stinking foulbrood" and "sour brood" are also names for this disease is the opinion of the writer.

The occurrence of the disease cannot be attributed altogether to the climate or food of the locality. The season of the year and the quantity of food are, however, factors which determine to a certain extent the course of the disease in the colony.

The disease is infectious and is caused by a germ named **Bacillus pluton.**

The worker, drone and queen larvæ are all susceptible to infection, but the adult bees are not.

The germs reach the stomach of the larvæ with the food. In the stomach they multiply rapidly and during the third day of the infection symptoms of the disease appear. Death takes place frequently by the end of the third day.

The sick and dead larvæ naturally contain the germs of the disease. There is a strong tendency on the part of adult bees to remove these larvæ. This is done in a piecemeal fashion and the spread of the disease

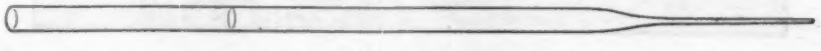


Fig. 8. Glass tube for inoculating larvæ by the direct method

* The word "rubberlike," used in this connection does not imply that the scales can be stretched like a rubber band, but simply that when dry they are less brittle than those of American foulbrood. The scales of both diseases when in a moist environment (a sample enclosed in a tight box, much moisture within the hive, or even on a very damp day) take up moisture readily and become soft. Under such circumstances, therefore, neither the term "rubberlike" nor "brittle" would be applicable for the scales of either disease.

† McCray and White. The diagnosis of bee diseases by laboratory methods. U. S. Dept. Agr., Bur. Ent. June 21, 1918.

The diagnosis of European foulbrood in the laboratory from samples received from beekeepers is usually made, or is at least confirmed, by finding *Bacillus alvei* in the dead brood. This procedure has been adopted because *Bacillus alvei* is readily recognized in making an examination of the samples, while *Bacillus pluton* is not, and the method is made possible from the fact that *Bacillus alvei* rarely occurs in other bee diseases, and when encountered in them is found in very small numbers only. The diagnosis in experimental studies, on the other hand, is made, as a rule, from the presence of *Bacillus pluton* in the living but sick larvæ. A few facts in connection with the disease make this difference in methods readily understood.

Bacillus pluton, the cause of European foulbrood, is present in large numbers in the stomachs of larvæ sick but not yet dead of the disease, while *Bacillus alvei,* if present at all, occurs then in small numbers only. In experimental studies an early diagnosis is especially desired. Sick larvæ, rather than dead ones, are used and *Bacillus pluton* is naturally the germ that is looked for.

As the brood in samples received from the beekeepers usually dies before reaching the laboratory, naturally the diagnosis from such samples must be made from dead larvæ. The bacterial finding in the dead larvæ is usually quite different from that of the sick ones. When the larvæ die *Bacillus pluton* stops growing, but *Bacillus alvei* begins to multiply then at a very rapid pace and invades the entire larval remains. Upon examining such larvæ, therefore, *Bacillus alvei* is encountered in very large numbers, while *Bacillus pluton,* in comparison, is present in small numbers only. While all larvæ dead of European foulbrood do not contain *Bacillus alvei,* the brownish and somewhat viscid ones, the scales resulting from them, and especially the remains and scales (Fig. 5, O, R, T) of the older larvæ usually contain this bacillus in very large numbers. In making diagnoses such remains are looked for.

‡ White. Circular 157, U. S. Dept. Agr., Bur. Ent, 1912.

in nature is determined largely by the disposition made of the fragments removed.

The germ that causes European foulbrood lives longer than either the one that causes Nosema-disease or the virus that causes sacbrood, but not nearly so long as the one that causes American foulbrood.

The disease may be present in a number of colonies of the apiary and not be transmitted to the others.

Hives which have housed European foulbrood colonies are not a fruitful source for the spread of the disease. Flaming them, while probably often unnecessary, will surely remove all possible danger. The hands and clothing of the beekeeper and the smoker and other tools used about the apiary are not likely means for the spread of the disease.

The transmission of the disease by way of flowers is not to be feared.

Experimental evidence indicates that if European foulbrood is ever spread through the medium of queens, drones or drifting bees the method is not the usual one.

Theoretically, the water supply of the bees, if it is near an apiary containing one or more diseased colonies and is a slowly changing one, might possibly become at times a source of infection to other colonies of the apiary, but whether the disease is ever spread in this way has not yet been determined.

Theoretically, also, under favorable conditions, robbing from bee equipment used about an infected apiary might spread the disease.

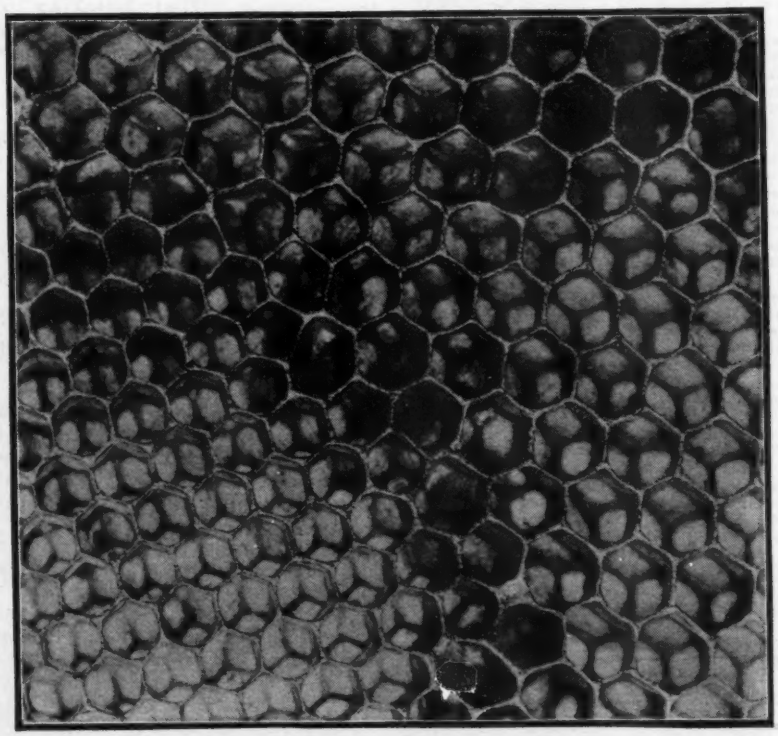
The spread of the disease in nature, it would seem, takes place chiefly as the result of robbing from diseased colonies.

The placing of brood-combs from diseased colonies into healthy ones will spread the disease.

Anyone, after having had a little experience with European foulbrood, can diagnose most cases of the disease very readily at the apiary. In the laboratory all cases can be diagnosed from suitable samples by bacteriological methods.

The tendency for the colony to recover from the disease is greater in European foulbrood than in American foulbrood, but is less than it is in sacbrood or Nosema-disease.

Considered from the technical viewpoint, much has yet to be found out about European foulbrood. For practical purposes, however, it can be said that sufficient information has been gained to make it possible for the beekeeper to devise a treatment for the disease which will be logical, efficient and at the same time economical.



Drone comb built next to worker combs, showing accommodation cells. (Enlarged).

LATE FEEDING CAUSING DYSENTERY AMONG THE BEES

By Kennith Hawkins

So much has been written pro and con concerning the trouble which may be caused by feeding liquid food to bees, either late in the fall or during the winter, that the following experiment may be of interest to beekeepers.

One colony of bees which was normal in every respect, was set aside here in Wisconsin, after all the available sources of nectar had been destroyed by frost. This colony of bees was shaken off the frames on which it was clustered and placed in a hive containing empty drawn combs. This was accomplished in the heat of the day when it was not particularly dangerous to the colony because of low temperature, and was at a time when there was no longer any brood in the hive, about October 1. The bees were placed in a hive with glass sides and the hive located in a building where they were kept in a temperature never less than 60 degrees F., but with an entrance leading directly out doors, facing west. The size of the entrance was about 4 inches wide and a beespace high. The colony was immediately fed with a sugar syrup of two parts pure cane granulated sugar to one of water, by means of a pepper-box style feeder. The bees took the food readily and stored it in their combs, but owing to the low temperatures at night, were able to seal very little of the syrup.

By October 25, during rainy, cold weather, with a temperature during the day of 40 degrees F., the colony was clustered quite compactly, and the activity of the bees was quite noticeable within the cluster, which was up against the glass hive side. They were again fed and were able to take some of the food down directly above the cluster.

By November 11, in cloudy, cold weather, with the temperature at 39 degrees F., the bees were again fed and were able to take down some of the syrup, although the disturbance of placing on the feeder partly broke up the cluster which the bees had formed. They were again fed November 16, with the temperature at 32 degrees F., and again partly broke cluster when fed.

By November 19, when no more feeding had been done, the bees had been forced to change their position on the combs because the sugar syrup supply within their cluster was exhausted. The effects of feeding syrup when the bees had no full flights was noticeable, as the abdomens of the individual bees became distended and shiny and the activity of the colony within the cluster was erratic and at times greatly increased.

When observed November 27, on a cloudy day, with the temperature at 17 degrees F., the activity of the cluster was very erratic and it was noticed that the queen had begun to lay eggs. A number of the bees had died and fallen to the bottom-board of the hive. Each had a shiny, greatly distended abdomen, and some were able to crawl out of the hive to die. The supply of syrup was adequate, but the bees did not seem to be consuming quite so much.

Observations made December 12 showed that none of the brood which had been started had been capped and that it seemed to die from lack of heat, as there were now nearly two inches of dead bees on the floor of the hive, and no more eggs noticed.

Within a day or two after this, when the colony was examined by looking through the glass hive sides again, it seemed as though the disturbance caused a sort of explosion within the hive and the cluster of bees broke. Bees crawled in every direction within the hive, some dropping, and some voiding excrement and dropping afterward. In a few hours all the bees were dead or dying on the

hive bottom. The temperature outdoors at this time was about 25 degrees F. At no time since the bees were first fed sugar syrup did they have a flight, to the knowledge of the writer. At the time the bees died there was still a considerable quantity of sugar syrup in the frames.

Moral: Feed early.

Watertown, Wis.

(This experiment confirms previous tests. When it is necessary to feed the bees late in the fall or during the winter, at a time when they cannot take flights occasionally, the only safe food is candy, placed over the combs, above the cluster.—Editor).

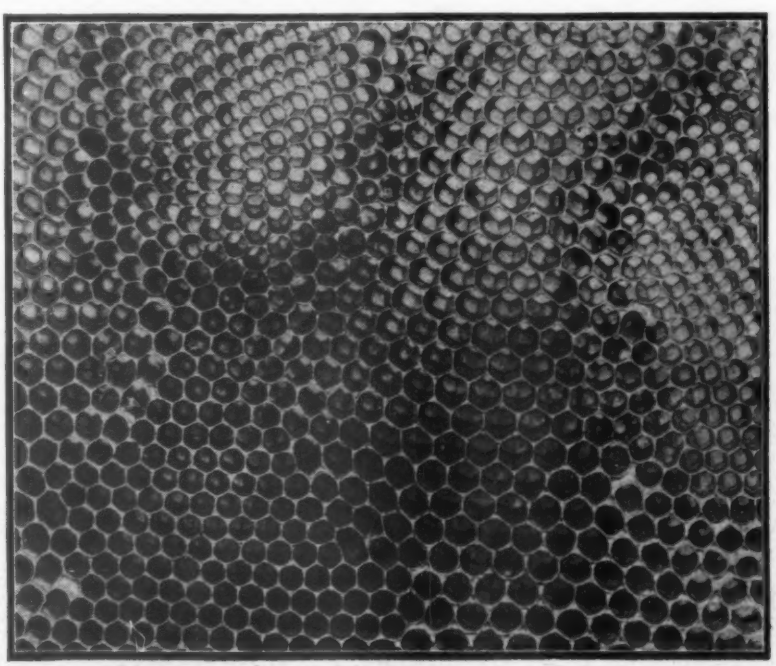
MIGRATORY BEEKEEPING

By C. I. Graham

I shipped my first car of bees in 1891, from Santa Ana, Orange County, to Newhall, Los Angeles County. 1891 and 1892 were off seasons. I fed heavy and lost 50 per cent from starvation. In 1893 I produced 300 pounds per colony in May and June, from black sage, in Mint and Bouguet Canyons, in Los Angeles County. In July moved by team 40 miles to Pondale, producing 20 pounds per colony from desert blue sage. In August moved twenty miles, 3,000 feet elevation, to Gorman Station, and produced 35 pounds per colony from wild buckwheat, the big red variety. 1894 and '95 were off seasons in those locations. I was compelled to move back to Los Angeles County, and Ventura County bean fields, to carry my colonies over. In 1896 I moved by team 90 miles, to Kern County, Tehachapi Mountains, 5,000 feet elevation; produced 52 pounds per colony, honey from mountain salt Sage, and delivered a car load of honey 50 miles to Mojave. I made my own road through Mojave Desert. In 1897 shipped back to L. A. Co., to Mint and Bouguet Canyon, salt belt, and produced 26 pounds per colony from black sage. In 1898 moved by team 30 miles to Bakersfield, Kern County, in June; produced 65 pounds per colony. In 1900 made four different crops by four shipments; first crop Los Banos, Merced County Spring flower belt, 20 pounds per colony, in February and March; second crop shipped to San Luis Obispo, Monterey County, sage belt, produced 8 pounds per colony in May and June. Third crop shipped back to San Joaquin and Sacramento Valleys; produced 40 pounds per colony from alfalfa and weeds in July and August. In September shipped to Merced, Madera and Fresno Counties to jackass clover belt; produced 70 pounds per colony; finished extracting on Christmas day, and shipped to Tulare County, orange belt for the winter. I shipped 14 cars for the season. In 1905 I shipped from Davis, Yolo County, almond belt to Saugus, L. A. Co., sage belt, producing 300 pounds per colony in May and June from black sage. In July shipped to Raisin City and Courthers, Fresno County, jackass clover belt, securing 30 pounds per colony. The crop was 240,000 pounds of honey, 2,000 pounds of wax. This crop was handled by myself and one helper from the first of February to the first of November. One extreme follows another in California. In 1906 I shipped all my bees four times before I produced honey to carry them over the winter. I shipped 20 cars for the season, including two cars to Carson City, Nevada. I hauled them by team 50 miles to Topaz, Mono County, Calif. My traveling for the season was five 3,000-mile books. My system is to double back two or three times before shipping to new locations, to make sure conditions are developing O. K.. Then a hot wave may kill and destroy the plants shipped to. In 1910 I produced 60 pounds of orange honey per colony at Exeter and Lemon Cove, Tulare County. In April I shipped to Reno, Truckee Meadows, Nevada. The 9th of May produced 200 pounds per colony from white clover, sweet clover and alfalfa. There was a steady flow from the 19th of May to the 15th day of September. In 1915 I produced 106 pounds of orange honey per colony in April at Porterville and Xante, Tulare County, then shipped to Reno and produced 60 pounds per colony balance of season. In 1919 my bees built up in the almond belt at Durham, Butte County, in February and March, then produced a little surplus from one-third of the colonies, mated 50 per cent of queens, then shipped to Oroville, Butte County, orange belt, in April, and produced 18 pounds per colony. In May I shipped to Yolo County reclaimed lands, domestic seed belt, and produced 60 pounds per colony from onions and carrots in May and June. In July the bees were shipped to star thistle belt, Colusa County, where they produced 120 pounds per colony, and tripled the number of colonies. One of these car loads of colonies passed eight health certificates during the season. During the season of 1919 I eradicated 15 cases of American foulbrood, 7 cases in one car, 8 in the other, and I realized how and where I picked it up. In 1918 I was located 2 miles from a careless beekeeper, who cleaned up his American foulbrood in the day time. Fifty per cent of his bees were affected. I had 600 colonies in this location. In 1918 I eradicated 12 cases of American foulbrood in one car, no disease in the other. Both carloads passed 2 health certificates during the season.

Now, who is most apt to spread disease, the migratory or the stationary beekeepers, even under our present county laws? In the yellow star thistle belt, in Sacramento Valley, 1903, I produced 68 pounds per colony, thistle honey, at Grimes, Colusa County. In 1908, 40 pounds per colony, Chico, Butte County. 1912, 32 pounds at Vina, Tehama County, 1917 45 pounds at Tehama, Tehama County and 1919, 120 pounds per colony at Princeton, Colusa County. In 1903 this thistle was unknown to beekeepers in California, excepting only three small belts to my knowledge, one at Grimes, Colusa County; one at Cottonwood, Shasta County, and one at Tehama, Tehama County. Now it has become a pest to farmers. No limit—an area, 100 miles in length, from one to fifty miles in width.

Allow me to state the opportunities and advantages have advanced 90 per cent in the past 20 years as to quantity of honey plants and extensive fields, although there is 90 per cent more diseases than 20 years ago in California and Nevada. In shipping 170 cars of bees I have lost 3 carloads; first car 544 colonies, shipped from San Luis Obispo, Monterey County, to Knights Landing, Yolo County, July 10, 1900. The car was spotted on team track at noon, unable



Comb built without foundation, showing both drone and worker cells arranged in irregular manner

to unload with teams at 6 p. m., the whole car load suffocated at once; in other words, in a very few minutes. Second car, 320 colonies, billed from Gypsum, Orange County, to Yaringtón, Nevada, by the Santa Fe R. R. They held the bees up at Bakersfield all day the 21st of July, 1911, thermometer 110, waiting for certain tonnage before moving the train. At 4 p. m. the whole car load suffocated with my complete shipping equipment attached to all colonies. Standing in one place was the cause of suffocation. Had those colonies been kept in transit, moving along to destination, unloaded at once and released, I would have saved the bees. The third car, 319 colonies in car, 245 lost; shipped from Roscoe to Tehama, July 3, 1917. The car was left where I could not unload the colonies from 8 p. m. to 8 a. m.. The delay and confinement in car was the cause of loss. After a car of bees has been in transit to their limit and stop, the colonies should be unloaded at once and released.

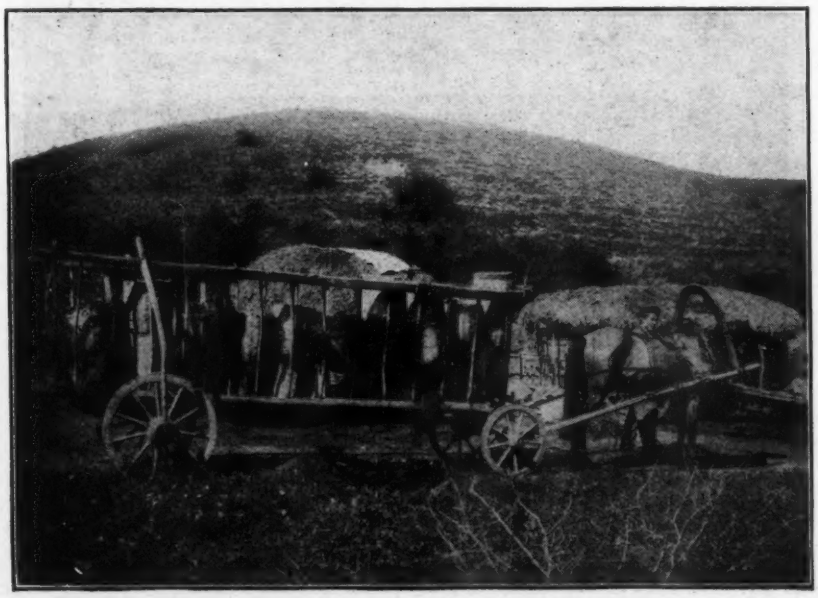
In February, 1902, I lost 1,200 colonies by flood water in the Sacramento Valley. On May 28, 1909, at Lindsay, Tulare County, Calif., orange belt, my migratory beekeeping came to a sudden stand. By misfortune I burst a blood vessel, developing into a stroke of paralysis. I have all my records since 1886 to the present day, from San Diego County to Modoc County, Calif., from Reno to Wells, Nevada. I have explored nine of the western bee States, Old Mexico and Argentine Republic, all for the love of the dear little industrious honeybee.

THE DISMAL SWAMP

By John J. Lewis

Under the heading "The Dismal Swamp for Beekeeping" you ask for information. I used to keep a yard of Italians on the northeastern edge of the swamp, at Magnolia, Va. There is an almost uninterrupted period of blooming of what are listed as honey plants from early spring to late fall, but in that region many plants listed as honey producers do not yield nectar, for instance, although sweet bay is most plentiful, I never saw a bee on the blossom. Red maple blooms in January or February when the weather is too cool to yield much. Yellow jessamine does not yield and the gums, although covering most of the swamp, do not yield much. I think it is too far north for them to yield well. Tulip poplar also is not much of a yielder. Rattan is in the shade too much for the bees to get to it. Cotton does not yield either. Water ash yields well, but is not common enough to amount to much. The colonies gain 5 to 10 pounds while it is in bloom. The surplus is all from May 1 to June 15, from blackberry, holly, crimson clover and persimmon. Something gives the honey a bitter taste and amber color. I always thought it was from holly. Mr. Geo. Rea said that, farther in the swamp, where Root tried wintering bees for early spring shipments, the honey did not have the bitter taste, although there is holly there. The only advantage I could see in keeping bees at Dismal Swamp is for early queens or early pound packages of bees, and that is questionable. Bees need winter protection, as it goes considerably below freezing at times. As they are active all winter, rarely over a week passing without their flying, they consume an enormous amount of honey in winter. A 10-frame Langstroth does not hold enough honey for a strong colony to come through to clover, and must be fed in spring. I used to have a botanical survey of the Dismal Swamp, but cannot find it at present. I would not advise anyone to go there to keep bees for honey production, and neither for package bees. European foulbrood is also there. Paralysis and pickle-brood are prevalent, probably on account of the damp climate.

The surplus per colony is less than in the North, and bees require a great deal more care.



Moving in Tersk District, Caucasus. Cylindrical wicker hives

I am not a novice, although I don't claim to be a professional beekeeper. What I have just given you is not guess work, but observation.

Last, but not least, don't forget malaria and mosquitoes. I used to take my quinine regularly.

List of honey plants to which my bees had access from one-half to one mile:

Soft maple very plentiful last of January to late in February; valuable for early brood-rearing.

Fruit bloom not very plentiful; valuable for brood-rearing. (April).

Crimson clover, May 1 to 14; several fields; good yielder (surplus).

Persimmon, few trees; good yielder, but not enough trees to amount to much.

Blackberry, May 10 to 30; best honey plant; quite plentiful (surplus).

Holly, May 20 to June 10; plentiful, good yielder (surplus).

Black and cotton gum, very plentiful in May; some honey.

Tulip poplar, plentiful; never saw any amount of bees on it.

Cotton, after July 4, very plentiful; does not yield honey.

Sumac (mountain), plentiful.

Partridge pea.

Gallberry, some in June, some honey.

White alder, some; no honey.

Ash, September, some; some honey.

Goldenrod, September; very plentiful; yields some nectar.

Aster, October, very plentiful; yields some honey.

Bay, in June; very plentiful; yields nothing.

New York.

MOVING BEES TO A NEW SPOT

By E. P. Stiles

Last year, about the middle of the horsemint honey flow, or a little later, I moved my little apiary to this point, in Central Texas, from the coast. Considerations other than bee welfare caused my removal from the coast, but in moving at that time I expected to get a larger share of the horsemint crop and to get in addition, later, the mesquite and sumac crops, and enough bitter honey to winter the bees on. Much too much to expect of this locality.

Previous to moving those colonies here they had been used all spring for rearing and testing queens and furnishing bees for pound packages; consequently they were much run down. The confinement to the hive and enforced idleness during the journey of about 200 miles and, possibly, change of climate—from sea level to 500 feet, from moist to dry atmosphere—seemed to invigorate them.

Owing to the expense of expressing the equipment of the yard, all material, except the hive bodies containing the bees, was shipped by freight, and this was much longer on the road than was expected. During this time the bees were without hive-tops or bottoms. Upon their arrival, the bees were moved to the new yard, the ground where the hives were to stand, raked smooth, the

screens taken from the bottom and the bodies set on the bare ground. The screens on top were covered with tarred felt and on that earth heaped. That same night a heavy rain storm ensued, but the soil being porous, the location a hillside, and the ground very dry, no harm was done. The bees went immediately to work, and during the succeeding three weeks stored considerable honey and built up into good colonies. This history brings them to the first of July, 1919. Then all sources of nectar failed, so far as surplus is concerned. From that time until May 18, 1920, the bees have lived from hand to mouth, starved or been fed. I lost some bees by starvation on May 16. They had been shut up by stormy, cold weather for three days and did not have sufficient stores, even for that short time. Usually, here, the 16th of May marks the beginning of our heaviest honey flow, the bees having begun to swarm in April. This year a late frost after Easter cut off the meagre supply of nectar and caused the bees to tear down their queen cups and kill all their drones. About half my colonies had enough stores, with what they could find, to pull through without feeding. The weak and deficient ones I have fed steadily. They are now the strongest and since the 18th of May have been storing some honey from horsemint, which is in full bloom, but because of drought is secreting little nectar. Our early mesquite bloom and gaillardia (Texas marigold) bloom were failures for the same reason. In addition to drought, we have had much cold and windy weather this spring. Take it all in all, this has been the worst season for bees that I have ever experienced, and my experience began in 1871.

Austin, Texas.

The above letter is interesting, especially from the statement that the change of location "seemed to invigorate" the bees. Our correspondent ascribes it to change of climate or of elevation. But we have seen similar "invigoration" when we moved bees only 20 or 30 miles. The eminent teacher, Mr. Demuth, asserts that there is a great deal in the "colony morale." We believe he is right and we believe also that moving bees to new fields has a beneficial effect upon them. The above letter is another testimonial in that direction.—Editor.

BEE NOTES

By Rev. A. A. Evans

A Starvation Swarm

Some years ago a dear, good friend of mine related to me a curious bee experience. It was a cold, bleak spring, and his solitary stock was all empty of food stores. He was aware of this, and determined to give them some candy, by and by. My friend is one of that class which thinks tomorrow is as good as today, and there is a saying that "tomorrow never comes." At any rate, the feeding, which should have been done at once, was put off. During a morning, swept by a northeaster, and a temperature almost Arctic, to his amazement he saw what looked like a miniature swarm; the bees came out, wandered aimlessly in the bitter wind for a minute and then settled in a benumbed knot some distance from the hive. "Now," says my friend, "after that you must give up those pretty ideas about the foresight and intelligence and good sense of the bee. When I opened the hive I found the queen and a small bunch of bees left, with just a few ounces of honey; for they were not quite without, you know; no, not without, or I should, of course, at once have fed them; a little honey was left. But could anything be more improvident, more fatuous, more idiotic, than to swarm on a cheerless March day, and in a world bare and flowerless?"

Gallant Gentleman

Then I explained to my friend that this was what beekeepers call a "hunger swarm," which occurs not normally, but sometimes when bees discover there is not enough food to last them until the flowers come again and nectar is obtainable. There is just the chance that by the abandonment of the hive by a portion of the colony, the rest, with the queen, can live on in safety, and what he had seen was the rare, pitiful occurrence of bees sallying forth to die in order to save the rest of the stock. Bee nature and human nature can come sometimes strongly into touch, for is there not an echo of this in the story of that "Gallant Gentleman," Captain Oates, who, in the Antarctic expedition of 1913, quietly walked out into the blizzard? Starvation swarms may occur not only in the famine days of spring, but following on bad weather and honeyless weeks of summer. There sometimes comes, even in the height of the summer season, a period of cold and wet, which prevents honey gathering, and the population of the hive being at its greatest, the store of food rapidly disappears. Then it may be a portion of bees will emerge in rain and wind only for the purpose of saving the life of the hive. These are possibilities a thoughful beekeeper will always have in mind.

DISCARDED CONTAINERS

By C. D. Cheney

My attention has been painfully directed to the menace accompanying honey containers which are discarded by housekeepers and others **without washing.**

This section has suddenly been attacked by American foulbrood, and no other explanation than the above can be offered for the extent and suddenness of attack; every yard has it, and only since last July. My object in writing is to suggest the benefit which may be gained by a campaign to get honey producers and dealers to place upon every container the request for the user to **"wash the container before discarding."** The expense would amount to nothing compared with the benefit to the bee industry wherever honey is consumed.

(Your experience is exactly in a line with ours. We have already tried to call the attention of the public to the danger of contaminated honey to beekeeping.

In an editorial published in June, 1913, and reprinted in July, 1918, in the American Bee Journal, we called the attention of beekeepers to the bad habit of wasting honey, as well as other food. Not only in unwashed containers, but in the remnants of the table, honey which is thrown away constitutes a danger, because there is a chance of the bees getting at this, second hand, and bringing to the hive with it undesirable bacteria. The very best-looking and best-tasting honey may contain in it germs which, absolutely harmless to human beings, would mean ruin to the brood of bees. It is true that, in most cases, honey is perfectly free from disease. But in case of contamination, the bacteria which cause disease are so small that scientific examination has often failed to find them. It is therefore very important that no honey be thrown away, whether from the plates of wasteful consumers or from unwashed containers.—Editor.)

HOOVERING THE WOODSHED

By Mrs. Dora Stewart

"Fit only for kindling,' was my partner's verdict. We were inspecting an old woodshed that marred the only attractive spot on the premises we had just rented as an apiary headquarters. The monstrosity simply must be eliminated, even if I had to do it myself, for the space it occupied, beneath a group of three black walnut trees, was to be our summer parlor.

Soon after, my partner having sustained a fractured hip, it was indeed "up to me" not only to cope with the woodshed, but with little money and no experience, to grapple with the problems of equipping our bee plant as well, the most important item being an extracting house.

But when spring operations began, I found the cost of necessary materials, lumber, canvass, etc., for even the most modest of our plans, prohibitive. Also, labor was at a premium. Six hundred young men sent to France from a town of only six thousand, had had an economic effect. No one was available, even to reduce the woodshed to "kindling." "Who wants fires in warm weather?" And "winter was a long way off."

Be that as it may, the important problem remained unsolved. Of what earthly use would it be to spend one's summer persuading bees to fill their combs with honey, if we had no way to get it out ?

Armed with a hammer, the only tool I had ever used, I went out to the woodshed to think it over. After pulling out a few rusty nails and pounding in others, I gazed gloomily at the extracting machinery piled under the only water-proof section of the roof. Uncle Bob (not really my uncle, but a sort of community uncle, rich and untroubled by economic

pressure), climbed over the fence, and, framed in the cobwebby doorway, stood smoking in sympathetic silence.

"Why don't you Hoover it?" he finally asked, with a comprehensive circling of his fragrant pipe.

"Impossible!" I told him, and examined again the old shed that bore eloquent testimony of prolonged private interviews between the heads of former renters and their obstreperous families. Broken glass everywhere, and parts of furniture were stacked in one corner. One might easily trace by the debris the descent from what was originally a screened-in summer kitchen, first to tool-house; from store-room to a granary for chicken feed, and on down to its present low estate. "Besides," I concluded, "It's too large for a beehive and too small for a garage, even for our fliver.'

"Why not an extracting house?" suggested Uncle Bob.

"Too near my neighbors,"and then by way of explanation, "the bees would sting the children."

"Move it."

Again I objected. It would surely meet the fate of the wonderful 'One-Hoss Shay," and our shiny new extractor would be swallowed up in the general collapse.

But Uncle Bob only waived his pipe airily. "Leave it to me, leave it to me," he said. "Just tell me where you want it."

The very next day the offending shed was moving sedately down the garden path. Two men, two planks, some rollers and a piece of strong wire had turned the trick. Nor had the building collapsed. Far from it. Its walls proved to be strong and the double floor and heavy sills held it intact until it could be anchored to the lean-to that served as a shelter for honey cans and cases.

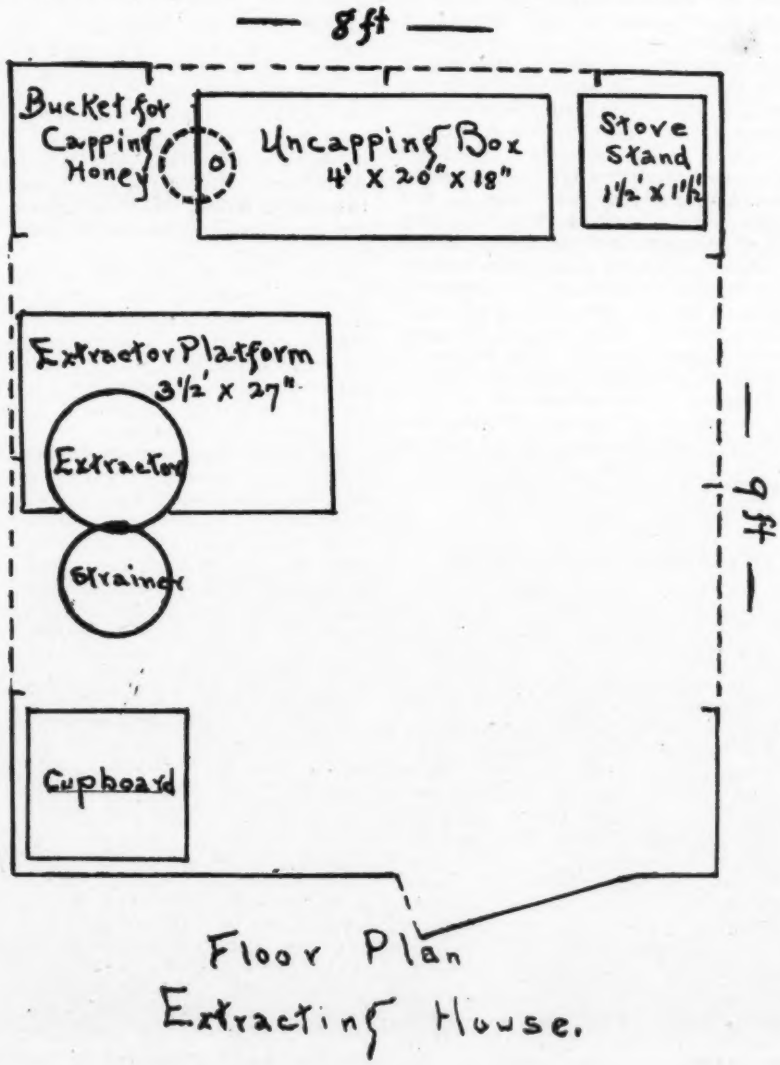
"Propinquity," Uncle Bob called it. "Of course honey must be extracted near the cans and cases."

Having gained his point, Uncle Bob, with the aid of his helper, jacked up the shed and rested it on nine 4x4 posts, creosoted to discourage their use by ants and other small insects. This arrangement brought the floor of the extracting house to a level with the Ford bed, so that "Liz" can be backed to the door, and the honey brought in from our two outapiaries, easily unloaded. New wire screening tacked over the window openings, a new screen door, quantities of whitewash applied within, and patches without finally made the shed bee-tight.

"How about the roof?" I ventured to inquire.

"The Lord will provide," declared Uncle Bob, with the ready optimism of the financially well-fixed. But it was his helper (a junk dealer by profession) who, in "helping" himself to the scrap iron uncovered by the removal of the shed, dragged forth a new roll of tar roofing paper, apparently secreted so carefully by some one of our predecessors that he had never been able to find it.

Thus there remained only the arrangement of the interior of the Hoovered shed. Our two-basket extractor, elevated to allow the honey to run by gravity directly into the strainer, stands on one side. The strainer itself, originally a 51-gallon honey tank purchased for home use, needed only a wire basket at the top to hold the cheese-cloth strainer. Five dollars seemed to be a large sum to pay the hardware man for such a basket—"best material" and the "most expert labor" notwithstanding. So I went forth seeking other worlds to Hoover. A 65-cent circular wire dish drainer, 6 inches deep, just fits inside the top of the tank, and suspended therefrom by picture-moulding hooks, fills the bill perfectly. The honey tank, or tank strainer, was then let through the floor of the extracting house, so that the honey gate is just inside the lean-to, and sufficiently high above the floor to allow a five-gallon container to stand under it. So the work of filling cans and cases can also be accomplished by gravity, and with a minimum of handling.



Floor Plan
Extracting House.

An uncapping box 18x20 in. by 4 ft, mounted on a bench 13 inches high, occupies the back of the extracting house. This box will accommodate 30 frames of honey at one time. The uncapping box has a galvanized iron bottom and the honey that drains down, through the wire screen from the cappings, runs through an opening in one end of the galvanized bottom, into a bucket underneath. To the right of the uncapping box is an oil stove on a small stand. The stove, a two-burner affair, also the pan that holds the water for heating the uncapping knives, were supplied by the junk man in exchange for the exhumed scrap iron.

An old cupboard, handed down from summer kitchen days, scoured and disinfected, occupies a corner for the accommodation of sample bottles of honey, feeding honey, small tools, etc. After the floor had been covered with scrap linoleum and all woodwork painted white, I ventured to include a description of the enterprise, together with the following table of its cost, in the regular monthly report to my convalescing partner:

Extracting House

Wire screening for windows	$2.65
Roofing (labor)	2.00
Creosoted posts	.90
Lime for whitewash	.50
Moving the woodshed	3.00
New screen door, complete	3.45
Uncapping box	6.33
Bench	2.50
Wire rack and galvanized bottom for same	4.00
Wire basket for strainer	.65

Unloading the cases of honey

Scrap linoleum	1.00
Stand for extractor	2.40
Paint	.75
	$30.18

The extracting house has a capacity of a half ton of honey at one extracting without overcrowding its 8x9 ft. floor space. It is cool, even in the hottest weather, and "you can stand in the middle of it and reach everything in it," boasts Uncle Bob, who is fond of inviting his friends and acquaintances to inspect it.

One such visitor, a veteran beeman, made no comment. Uncle Bob followed him to the gate. "Didn't you look at the extracting house?" he anxiously inquired.

"I didn't see any extracting house," returned the visitor. "I went into a little white parlor and stuck around awhile waiting fer some one to pass the tea an' cakes."

Uncle Bob was mollified.

Best of all, when my partner was able once more to report at headquarters, he pronounced our equipment "bully!"

But I shall never know whether or not he was more pleased at finding an up-to-date extracting house ready for business at a cost of only $30.18, or regretful that he had not shared the fun of Hoovering.

NEWS ITEMS ABOUT BEES

Serious and ridiculous statements from the daily press:

Superstitions

In ancient days it was thought that the bee had "an ear for music"—strange was the reasoning—because even then it was customary for their keepers to make a tremendous clatter when they were swarming, to keep them home.

Even in our own New England, in other years—as well as in various parts of Europe—it was believed that bees would leave the hive on the death of a member of the family unless they were told about it. So to avoid this loss a maid or a friend of the family would knock on the hive and tell them about it.

In some parts of the civilized world today bees "are put into mourning" when a member of the family dies. That is, someone knocks on the hives and tells them of the death, and then drapes each hive with a strip of crepe. If this were not done the superstitious believe the bees would fly away.

Another interesting fact about bees is that so long ago as the days of ancient Egypt the good order exhibited by bees in their government of themselves was commemorated by Egyptian kings employing them as symbols of royalty. As such they appear in hieroglyphics that exist today. The same thought made bees the dominant decoration upon the mantels and flags of French kings, and little bees made of gold were buried in the tombs of some of the French kings.

Another superstition of old days still found in some sections of England is that which declares the beehives must be turned around when the funeral procession of a member of the owner's family passes them. If the hives aren't turned it is believed the bees will immediately swarm and leave their hives.—Rochester, N. Y. Herald.

Bees Steal Jam

A peculiar phenomenon was observed in the apiary of Norris S. Dailey, in his orchard at the north part of the village. While he was removing honey from the hives he saw that three combs were filled with a pink substance. Upon investigation he found that instead of honey it was raspberry jam, except that the seeds which usually accompany the jam were absent. He says that other apiaries in the village have been affected in a similar way to a less extent.

All the jam in the honey combs comes from a preserving plant, which is over half a mile from Mr. Dailey's home. Swarms of honeybees and hornets have invaded the plant during the past week, robbing the uncovered jam jars of their sweets, often stinging the operators, and on one occasion driving the whole force from the building.—Auburn, N. Y., Advertiser-Citizen.

Bee Sting Serious

Severely poisoned by the sting of a bee last Thursday, John Hummel, son of Mrs. J. W. Hummel, of Wapato, is reported to be recovering as a result of prompt medical attention. The unusual severity of the sting is attributed to arsenate of lead, supposed to have been absorbed by the insect in deriving nutrition from plants so treated.—Yakima, Wash., Herald.

Sting on Tongue

Stung on the tip of the tongue by a bee, while he was driving his automobile from Pomona to his home in La Verne, H. N. Hanawalt was ren-

"Milking the honey cow" a friend terms the filling of the cans

dered unconscious and narrowly escaped wrecking his machine. Hanawalt was eating figs and did not notice a bee on a piece of fruit he put into his mouth. The business end of the bee connected with the very tip of his tongue. His first sensation was a sharp pain, followed by weakness as his senses began to leave him. He barely escaped striking a telegraph pole as he halted his machine.—Harrisburg, Pa., News.

Excitement

Two large swarms of bees settled on the front end of a buggy standing south of the Rochester National bank on Third street SE, following a sensational flight down Broadway yesterday afternoon. One queen led her hosts to the thills. The other chose the right front wheel for her capitol.

All went well for about three seconds, until Dobbin, who was hitched between the aforesaid thills, began to feel nervous. He switched his tail tentatively. About that time a whole regiment of bee shock troops shoved their bayonets into Dobbin's flanks. A bombardment with heavy artillery was the only recourse for the horse. The buggy had already begun to travel the road to the family wood pile when a passerby unhitched the horse and led him away.—Faribault, Minn., Daily News.

Bee Handler Dead

Franklin L. Burson, 83, a well-known beeman, is dead at his home here as a result of being repeatedly stung a few days ago when he was handling several hives of bees.—Marion, O., Star.

WINTERING

By Daniel E. Robbins

I will outline a plan of wintering that has given me very satisfactory results for 35 years.

First, a fair-sized colony with a good proportion of young bees, with plenty of honey and a good queen. I use 10-frame Langstroth hives and leave the brood-chamber without change except to take out poorly filled frames and put in enough filled ones to make 7 or 8 frames of honey.

I leave the hive on the summer stand, one story, with oil cloth quilt over frames and the regular cover. I restrict the entrance to about 4 to 8 inches length by ¾ inch. I protect by a box without bottom, 28x32 in. square, 30 inches deep on the south and 36 inches on the north. I pack with forest leaves or something equivalent; make the leaves firm at the ground to keep wind from blowing under. I provide a tunnel from the entrance so bees can fly.

The cover is 3 feet square, 2x2 in. cleats, inch boards fitted close together; the slope runs water off, and if the packing does not touch the cover it will stay dry, though I always clean off heavy snows.

In February I examine to be sure all have honey, by taking off the top of the packing of first hive and putting in a box to allow examination; the second hive's packing is put in the first, and so on till the last one, which receives that from the first.

In March I see that every hive has brood; if not, give some eggs and young larvæ from some good colony, so they may raise a queen, and when settled warm weather comes I remove the packing, storing the boxes around the fence of the beeyard, sometimes saving part of the leaves in them. These shelters, though made of old scraps of lumber, last for years, the covers being the first to fail.

Payson, Ill.

BEEKEEPING IN ARKANSAS

We are in receipt of a bulletin recently issued by the Experiment station of Arkansas with the title, "Beekeeping in Arkansas." It is written by Prof. W. J. Baerg, and contains 32 pages. It covers the fundamentals of beekeeping very nicely and should be in the hands of every Arkansas beekeeper. Those interested should write to Prof. W. J. Baerg, Fayetteville, Ark.

TEXAS CONVENTION

The Texas beekeepers will meet in annual convention for the 28th time at College Station, on August 9, 10 and 11. An extended program of live topics is announced and visiting beekeepers will find three days packed full of interest. Texas is a big State and boasts of a number of men who may be called big beekeepers. It is worth the while of those of other sections to attend a Texas convention and get pointers from the live wires of the Lone Star State.

SUMMER MEETING

The summer outing of the New York State Association of Beekeepers' Societies will be held at A. L. Coggshell's apiary, Groton, N. Y., on Friday, August 6. There will be many prominent speakers on the program. Mr. Geo. H. Rea, Extension Specialist, Ithaca, N. Y.; Mr. Ernest Root, of the A. I. Root Co., Medina, Ohio; Dr. Geo. G. Atwood, Director Bureau of Plant Industry, Albany, N. Y., and we hope to have with us Mr. K. Hawkins, of the G. B. Lewis Co., Watertown, Wis. Also addresses from others attending. Let us do our best, take a day off and make the attendance better than the four hundred and fifty of last year.

J. W. Cunningham, Sec.

BEES IN A BELL

"For many years the tower of North Benfleet Church was so cracked that the largest bell of four could not be used. When the tower was rebuilt, about 20 years ago, the large bell was found to be full of very good honey. The combs were all dark—but not the honey. I could not see it myself, but the gardener at the rectory told me about it."—C. Reed, in British Bee Journal.

BEEKEEPERS BY THE WAY

A Fried Mush Convert

Some years ago James E. Starkey, now of Bunker Hill, Ind., was teaching school near Peru. He boarded in the home of George S. Demuth and the lady of the household frequently served fried mush and honey. By the time his term of school was ended he had formed the habit to such an extent that he felt that he must have bees of his own. Like most other beginners, he bought bees wherever he could find them and soon found himself with hives of every kind which had ever been popular in that region.

The variety of kinds and sizes of hives did very well until he chanced to hive a stray swarm on drawn combs. The bees brought American foulbrood, with the usual result. When Starkey discovered what he had, the entire outfit was well seasoned with it and he decided that a bonfire would provide the best disposition of his miscellaneous collection of hives. By shaking the bees into new Langstroth hives and destroying the others, he in time overcame the trouble. By the time he had mastered the disease in his own yard he had become a real beekeeper and graduated from the beginners' class, although he still liked honey on fried mush for breakfast.

As time went on the State Entomologist was looking for a beekeeper who could drive disease out of his own yard, to help drive it out of the State of Indiana. Starkey is now helping Johnson and Yost in their effort to clean up the State. Success to them.

James E. Starkey

HERMAPHRODITE BEES

May 20 last I introduced a queen that I got of a breeder in Alabama. Today I saw some nice yellow-looking young bees crawl around near the hive. Picking one up I found it a freak, such as I never saw or heard of. The thing tried to sting me and had a stinger. It looked like a worker bee in every way; also same size, but had the eyes, head and tongue of a drone. They crawl out and away from the hive of their own accord. I saw several dozen run out; none could fly. Nearly all that I examined had stings. They surely are not worker bees, as they have drone heads, and they are not drones, as they have stings.

Did you people ever see the like? Please let me know. I enclose a few as samples. W. M. SMITH,

LeSueur Center, Minn.

The bees which you sent are dry, so it is difficult to examine them thoroughly, but they evidently have eyes that join at the top of the head, just like those of drones. Otherwise they appear as workers.

They are freaks and that is probably why they crawl out of the hive to die. An accident of this kind is rare. It might interest the scientists at Washington if you sent them a few for examination. Send to the Bureau of Entomology.

JUNIORS ORGANIZE BEE CLUB

Seven boys met at the home of H. C. Cook, 4521 Park street, Omaha, Saturday, June 12, and organized the Douglas County Junior Bee Club, elected their officers and received instructions in the beekeeping work.

This is the first boys' and girls' standard bee club to be organized in Nebraska, and one of the few organized in the United States. This work was outlined last year by Mr. H. C. Cook, an expert beekeeper of Omaha, and County Agent E. G. Maxwell. It was given a trial last year, but not on the standard club basis. Five boys took up the project and the plan worked so successfully it was decided to organize a club this year.

The rules of the contest specify that the members must start on June 5, with a ten-frame hive, a one-frame nucleus consisting of a frame of brood, adhering bees and queen and that all the bees must be produced during the contest from the nucleus, and no assistance be given by addition of other bees. In 1919 each of the boys who were in the contest produced a good strong colony and enough honey for their winter use from the one-frame nucleus started June 5th. One of the boys produced two strong colonies of bees and 32 pounds of comb honey from June 5th to September 5th.

The club work has been outlined as a two-year project, the first year work, or "Project" will consist of building up a colony from a one-frame nucleus. This is designed to teach the members to raise bees. "Project 2" of the club work will begin in the fall, or at the termination of "Project 1," and will cover a period of 12 months. During this contest the members will have a chance to demonstrate their ability to handle full colonies of bees for comb or extracted honey production.

EARL G. MAXWELL,
County Agricultural Agent.

SUMMER MEETINGS

The Panhandle Beekeepers' Association and the West Virginia State Beekeepers' Association will hold their summer meeting at Elm Grove, W. Va., August 10, 11 and 12, 1920.

The meetings will be addressed by Dr. Phillips, of Washington, D. C., Mr. Kenneth Hawkins, with the G. B. Lewis Company, of Watertown, Wis.; Mr. E. R. Root, of Medina, O., and Mr. T. K. Massie, of Hatcher, W. Va. The deputy inspectors will tell of the good work being done for the beekeepers of West Virginia.

WILL C. GRIFFITH, Sec.

BEES KILLED BY SMELTERS

Acting on the suggestion of L. B. Bell, an Arizona beekeeper, Governor Campbell, of Arizona, has instructed the State Entomologist and Plant Pathologist of that State to make a complete investigation of Bell's claim that beekeepers are losing money through damage to honey plants in the vicinity of the smelters. Bell claims that fumes from the smelters of the United Verde and Extension Smelter Company, in Verde Valley, have so damaged the flowers in that community by fumes from their stacks that beekeeping is no longer profitable. He asks a State investigation and if his claims are substantiated by the scientific authorities of Arizona he will ask that the smelters cover the expense of moving the bees in the affected territory to a new territory nearby where the fumes of the smelters do not reach them. He cites as authority for his action, that the beekeepers were in the valley before the smelters and have the right of priority, a question which has not been tested in American courts regarding beekeeping. The charges are that sulphur is deposited on the bloom of honey plants which are visited by the bees, and that this causes the honey to taste like a good variety of parlor matches. An excellent write-up of the case has been given in the Los Angeles Times.

KENNITH HAWKINS.

MASSACHUSETTS BEEKEEPERS MEET

By W. H. Wolff

A very successful and enjoyable meeting of the Hampshire, Hampden and Franklin Counties Beekeepers' Association took place at the home of Mr. and Mrs. C. H. Taber, at 7 Yale street, Holyoke, on Saturday afternoon, June 19, with about 50 beekeepers in attendance.

The principal speaker of the occasion was Mr. F. S. Davis, who presented a paper on beekeeping conditions in Florida and the South, and his experiences in that section. Other impromptu speakers were Otis E. Hall and W. H. Wolff, of the Hampden County Improvement League. Mr. Hall briefly told of the work of organizing the Boys' Bee Club, and asked for the co-operation of the older beekeepers. Mr. Wolff said that the present was the beekeepers' great opportunity to develop this industry in a big commercial way. He urged simplified beekeeping, the running of the colonies for extracted honey in big two-body hives, out-of-door wintering and leaving 45 or 50 pounds of honey with the colony in the fall, so as to eliminate the worry and work of feeding, and to insure the bees plenty of food for early and abundant brood rearing.

After the program Mr. Taber invited the guests to inspect his apiary. One of the interesting features was a couple of colonies that were started from 2 frame nuclei with queens brought from Mississippi by express and received by him on May 15. These were building up into strong colonies and gave promise of storing a surplus of honey this season.

Refreshments of cake, fruit, punch and ice cream were served by Mr. and Mrs. Taber.

DOPE FOR STINGS

A troubled beekeeper writes this office making inquiry after stingless bees. I fear that many beekeepers, including the editors of our valuable bee journals, do not appreciate the atrocious pain and subsequent distress caused many people by the sting of a bee. It is so severe as to make some people actually ill for two or three days, and death has resulted in some cases, either from many stings or from a single sting on some susceptible part of the body.

My wife is very sensitive to the effects of stings. She also has a high regard for the virtues of hot water as a curative agent for bruises, pains and local irritations. She discovered that hot water promptly applied and continued for some minutes overcomes almost or wholly the effects of a sting. Considering this in the light of my medical studies, I concluded that it results from the disintegration of the animal poison, varying degrees of heat having the power to alter the molecular structure and hence the character of most substances. This suggested to me that some other agent might perform the same purpose. As tincture of iodine is very penetrating and has a strong chemical reaction, I experimented with it and found that it is in most instances quite as effective as hot water. It is a household remedy almost everywhere available, and a small bottle can be kept at the bee-yard, saving the inconvenience and loss of time in heating water.

It is an axiom among physicians that where many remedies are suggested, it is because no one of them is entirely satisfactory. I have heard of and tried out many remedies for bee stings, but these two are the only ones in my experience that are really effectual. The iodine must be used immediately, to neutralize the poison while still at the point of puncture. Moist heat is effectual after the lapse of some little time. These measures

are equally useful for other surface bites and stings.

While discussing this subject it is well to mention the need, generally understood, for instant removal of the sting by pushing it out sidewise with the finger nail, avoiding pressing the poison sac, which would force the poison into the tissues.

S. A. JONES,

Washington.

CARDBOARD CASES

By A. F. Bonney

There is certain to be a great shortage of cases for square cans, for mailing honey this fall, but fortunately, they may be made, and at a cost much less than the regular article.

There are thousands of tons of material to be had at actually no cost, in the boxes used to ship goods of all kinds, and the writer has planned as follows:

Make forms to mark by, one to cut a piece which will cover the four sides of the can, the other to cover the two sides and ends. Cut notches where the cardboard is to be bent, and guided by these cut partly through the material with a sharp knife and bend the resulting case around the can. It is hardly necessary to fasten the joints, but if it is desired, a strip of tough brown paper may be applied, using liquid glass for a paste, as it dries almost instantly. A stout cord tied around the two pieces of the case will hold it securely. I have used such a case with satisfaction.

In using liquid glass, pour some into a dish and use a small, one-inch sash tool to apply it. If it becomes too thick, it may be thinned in the dish with water.

I have found a pair of tinner's "snips" or shears the best thing with which to cut the cardboard, as some of it is very thick and hard.

I have mailed friction-top pails safely by putting about three thicknesses of the cardboard around the can and a round piece over each end, then wrap in paper and tie; but the top of the can must be soldered, and four lumps of solder equidistant on the joint is enough. A little powdered rosin is all that is needed to make the solder hold on new tin.

OHIO STATE FAIR

From the premium list of the Ohio State Fair, to be held at Columbus, from August 30 to September 4, we extract the following information:

"At the annual meeting of the Ohio State Beekeepers' Association, held January 26-31, 1920, a co-operative organization was entered into between the members of that organization and the management of the Ohio State Fair under which the beekeepers agree to furnish the honey for the 1920 State Fair, while the Fair management accepted the responsibility for staging and caring for the exhibit. No premiums to be offered or awarded. Under this arrangement the beekeepers agree to furnish the honey, putting it up in containers supplied by the Fair management.

"The Fair management supplies the containers, paying transportation both ways, furnishes labels, which shall bear the name of the Ohio Beekeepers' Association and an identification number; furnishes a numbered list of all exhibitors, numbers to correspond with exhibitor's number on label; installs exhibit, cares for it during the fair, disposing of same at end of exhibition period, remitting to each exhibitor his prorata share of the proceeds after deducting cost of containers used."

This is certainly a novel arrangement and beekeepers of other States will watch with interest the success of the plan. To stage an exhibit worth while, with no premiums offered, will certainly indicate a live bunch of beekeepers in Ohio.

A Noted Beeman

Crepieux Jamin, M. D. The first French civilian rewarded by the King of Belgium with the Order of Leopold, for services rendered to 3,000 wounded soldiers.

Co-operation

By A. F. Bonney

For Sale—Northern grown Rocky Mountain extracted (strained) honey, the purest and most wholesome sweet; two 5-gallon cans (120 pounds net weight) only $24 f. o. b. here. Single can $12.50. Satisfaction and delivery guaranteed. Send payment with order.

Honey—White clover, guaranteed from our own apiary; 60-lb. can $15.

If anything were needed to fortify the argument that honey producers need to get together on prices the two ads above would furnish it, for there is a difference of $2.50 on a 60-pound can.

The ads are a good lesson on advertisement writing. The low price man uses seven lines, fifty words, at seven cents a word, at total of $3.50 per insertion, to advertise a low price, while the other advertiser uses but seventeen words, at a cost of $1.19. The dashes after the ads are put in in place of the names and addresses of the parties paying for them.

Cannot something be done to equalize the price of honey? Personally I believe we need National, State and County organization.

Twelve dollars a 60-pound can is 20 cents a pound, **less** the cost of the can, now about $1; advertising, which will not be less than a cent a pound for the honey sold; drayage and incidentals. Deducting from the $12 the above items, which will amount to about $1.90, it leaves but a trifle less than 17 cents a pound for the honey. When it is noted that the price for honey ranges from 22c for dark amber to 24c for light amber, and up to 38-45c in New York, the need of co-operation is made the more apparent. Chicago quoted Cuban light amber at 14-14½c.

A party in Cuba reports that "Honey is worth today $1.15 a gallon." That is 9½ c a pound. If we keep on cutting each other's throats we shall soon be in the Cuban class.

Buck Grove, Ia.

A Cheap Feeder

By M. W. Greer

In the May issue of the Journal, on page 168, your correspondent, Mr. Ezra Wiggins, gave his method of feeding his bees and closed by saying that if any one knew of a cheaper, simpler or handier way, to pass it along. I tried his plan some years ago, but I did not like it very well, as I found it difficult to get the syrup to run into the cells unless it was made very thin; but I have devised a method that suits me the best of anything I have ever tried. It is not only cheap and convenient, but works to perfection. First, I get one of those tin containers in which coffee comes, holding one pound. They are about three and one-half inches in height and five inches in width, and hold three pints. Then I take a sharp instrument of some kind and punch a row of small holes just below the rim, punching from the inside; then get a saucer or tin pan, or what is still better, one of those earthen saucers that the women put under their flower pots, as they are a little rough, so that the bees can crawl over it. Now I fill the can or cup with syrup, and put the saucer or pan on top. I hold firmly, and with a quick motion invert all together. I remove the cover from the hive, place the feeder on top of the frames, put on a super, then put something around under the outer edge of the saucer for the bees to crawl up over to get at the syrup—a roll of paper or some old cloth, a piece of old rope, or perhaps some

chips of wood will answer. Then I put on the cover and the bees do the rest.

(This is the atmospheric feeder, used by many. But the suggestions given are somewhat novel. Everybody has coffee containers, and so the feeder costs nothing.—Editor).

DR. MILLER'S ANSWERS

Questions are answered in order received. As we receive more questions than we can answer in space available, two or three months sometimes elapse before answers appear.

Spraying—Location—Supplies

1. Will the spraying of apple trees injure bees, if so how would you advise to remedy it?

2. Would you think my location favorable for beekeeping? Our main honey plants are white clover and Spanish needles. I am in Wayne County.

3. Where would you advise me to purchase supplies? ILLINOIS.

Answers.—1. If apple trees are sprayed when in bloom it will not only be bad for the bees that get the poisoned nectar, but it will be bad for the apple crop, since the poison will injure the blossoms. Unfortunately there is no law in Illinois against spraying fruit trees in bloom, so your only recourse is to appeal to the owner of the trees not to spray during bloom, not only because it injures the bees which are his good friends in fertilizing the bloom, but because it will hurt the apple crop.

2. With plenty of white clover and Spanish needles you ought to succeed.

3. Purchase from any of those advertising in this Journal, other things being equal giving preference to those nearest, so as to save freight.

Pratt's Method of Queen Rearing

Would you be good enough to define Pratt's, of Swarthmore, Pa., method of queen rearing, as I see mention of it made in Alexander's writing? Dr. Miller also lightly touches the subject in "Fifty Years Among the Bees."

If I should see a book advertised entitled "Pratt's Method" I would not bother you, as I am getting disgusted with the foolish questions those "gum beekeepers" ask. If they would only invest in an elementary beebook and not bother professionals with their nonsense! CALIFORNIA.

Answer.—The Swarthmore system of queen rearing was based principally upon Doolittle's cell-cup system. But E. L. Pratt, who gave it this name, was the inventor of it. His assertion was that one could rear queens in small sections, 6 to a frame, and get them fertilized by setting such frames, containing 6 boxes, half opening on one side, half on the other, fastened to stakes out-of-doors. Descriptions of his methods were given in Gleanings for 1901, pages 434 to 504. He had also a method for making molded cells, by pressure on the underside of a top bar. He had a queen nursery and also asserted that he could winter as many as 75 queens in a single hive, as stated in Giraud's "Traite Pratique de l'Elevage des Reines." His method is undoubtedly economical. But we doubt that it was practical. At any rate, the A B C barely gives him mention in its "queen-rearing" article, and Pellett did not mention him in his "Practical Queen Rearing."

Your criticisms of the "foolish questions" may induce some of our beginners to invest in a text-book and read it before asking questions. They should bear in mind that a bee magazine is intended for matters which are not given in books. But the elementary questions of the business are answered in atmost any of our text-boks.

Bees Fighting

I am just starting in bees and have five hives, which wintered well; have plenty of bees and stores. These bees seem to have a continual fight on, when it is warm enough for them to be out. At night there will be probably three big tablespoonfuls of dead bees scattered in front of the hives. I noticed them fighting this way in the winter, when they could get out. The hives are set close together and the entrances are about 3⅛x2 inches. If there is robbing, I can't tell it, and I have been careful about exposing honey. Have only opened them once this spring and that was after supper when they were not flying. Is it natural for bees to fight this way? IOWA.

Answer—No, it is not natural for bees to fight this way. Usually, when there is any latent fighting, it is due to some of the colonies being stronger than the others and to the weaker colonies not being able to fully protect their stores. There is also a possibility of fighting when there is drifting of bees from one hive to another, on account of their being in too close proximity to one another. Did you move them closer together for winter? If you did, that would explain the fighting. If any of your colonies are weak and have a large amount of stores which they cannot protect, it might be a good plan to remove this extra honey and give it back to them when they are strong enough to take care of it.

American Foulbrood and Treating the Same

1. Authorities on bee diseases seem to be at sea of late in distinguishing American from European foulbrood symptoms, and an inspector examining my colonies could not tell me positively whether mine had one or the other. Would you give me some positive distinction of these diseases by some competent authority?

2. I am experienced with the shaking method of treating American foulbrood. If there is any shorter, less drastic means of merit kindly describe same.

3. Since I have 12 or 13 colonies to treat, would like to save the hatching brood. Which is the best method for doing this, when using the shake method? I had planned to tier up the shaken frames containing hatching brood and later shake same and give young queen, of Italian blood. MICHIGAN.

Answers.—1. You are right in stating that authorities seem to be at sea in distinguishing between the two diseases. This indicates how little we know about these matters as yet. However, the main things known about the diseases are:

In American foulbrood the larvæ die about the time when they are about to be sealed up in the cell; the larva rots down, assumes a brown coffee color, has the odor of joiner's glue and is stringy or ropy, so that a toothpick inserted in its body brings back a sticky matter which stretches out a couple of inches and flies back like india rubber.

In European foulbrood the larva dies mainly when still coiled in the bottom of the cell, or shortly afterwards. There is very little ropiness.

These are the statements of positive authorities, but there is now a tendency to believe that these symptoms are not always reliable. The best authority is Dr. G. F. White, specialist in insect diseases, at the Bureau of Entomology at Washington. Write to this bureau and ask for Bulletins 809 and 810, both by Dr. White. Send samples of doubtful brood to Dr. E. F. Phillips, at the same Bureau of Entomology. This is the best information that can be supplied up to this date.

2. With real American foulbrood, we believe in the shaking treatment, nothing less.

3. Tiering up the brood to hatch it and thus save it has been recommended. If it is done with great care, it may prove good. In any case it is well to be overcautious.

A beekeeper whose bees suffer from foulbrood should not get discouraged, but be persistent. We have had experience with foulbrood and have made greater crops since then than before. It is perhaps because it compelled us to be more attentive to the business than ever.

Active Vs. Inactive Bees—Large Hive —Glass Hive

1. Why is it that colonies of bees right in the same yard and same conditions do not all seem to get busy at the same time? Some days I notice certain hives are very active and other hives quiet. Then possibly the next time I go to look other hives are busy and the first mentioned are still.

2. How about hiving a swarm of bees into a big Jumbo hive? Would it be all right, or would it be only in case the swarm is an extra large one?

3. I should think these big swarms in Jumbo hives would never be bothered with moths, unless they become queenless.

4. Are bees in large hives liable to be more scrappy when you take honey from them than colonies in 8-frame hives?

5. Some good beemen claim they can artificially raise 5 or 6 swarms from one hive in a season, if they don't care to get any surplus honey. Others say only the rousing big swarms pay. Now how about it? I should think these nucleus hives would be constantly in danger of moths, etc.

6. Don't you think it would be best to get 1 swarm from each hive and then discourage any more?

7. Don't bees attempt to raise a new queen in a Jumbo hive, or, if they do, wouldn't they surely swarm?

8. If a man had all twelve-frame hives instead of smaller ones, wouldn't he be compelled to make his increase swarms artificially?

9. I notice that some of the Southern beemen use great long hives or else the pictures in their "ads" are misleading. What is their object for using different hives than we use in the central States?

10 Do you think it would be well for a new beginner with bees to make a hive with glass sides and top, so he could watch them and learn? Or couldn't a person find out much that way? Should such a hive be kept darkened except when you want to watch them?

11. In case a colony becomes queenless, are the remaining bees sure to take a young worker bee and develop it into a queen, i. e., if they have any such brood available?

12. How does a man raising queens prevent the first one hatched from destroying the ones that are not out or fighting with the queen of the colony? NEBRASKA.

Answers.—1. Why don't you and your neighbors get up at the same time always? Bees are usually active insects, but conditions and tempers differ, even among them.

2. If the swarm is small it will take it longer to fill a Jumbo or a 13-frame hive than an 8-frame. But they will fill it if they have a good queen and a good season.

3. No bees are bothered with moths when they are strong enough to cover their combs, whether in a large or a small hive.

4. No, not if handled properly.

5. They can, but the large colonies pay best.

6. Sure.

7. Bees will rear queens in any size of hive, if they wish to swarm.

8. Yes, he would have less swarms. But he

might still have more swarms than he wanted if he did not look after their other requirements, such as giving them plenty of surplus room, shade and ventilation.

.9 Those men who use very long hives probably do it to produce bees to sell by the pound, and queens, instead of surplus honey.

10. A hive with only one frame and glass on both sides is very useful to learn natural history. It must be kept covered when not inspected. Try it.

11. Yes. One or more.

12. By removing all the cells that he wants on the tenth day after making the colony queenless. Read some good text book.

Number of Pounds of Bees to Hive

How many pounds of bees should I put to the hive for good results in starting an apiary by buying bees by the pound? ILLINOIS.

Answer.—A pound of bees with a queen, put upon full combs, often give good results. But much depends upon the crop and the season. It would be better to have two pounds with a queen. The more the better, as a matter of course.

Sugar Candy for Bees—Moths

1. How much water do you put to a pound of sugar for feeding bees in a Thale feeder?

2. The comb in the hive of bees I have is as black as coal, and on investigating it I found moths in them. I cut out two big patches in the comb. Was that the right thing to do? What makes the combs black? Should the bees be transferred to a new hive with foundation in it? If so, when should it be done, and how?

3. In watching the bees the other day I saw a couple of bees pulling a long piece of straw in the hive. Is that a natural thing for the bees to do?

4. Would it be all right to feed flour for pollen till the trees get in bloom? ILLINOIS.

Answers.—1. Half a pound of water for each pound of sugar. For spring feeding you can make it thinner. Feed it warm if possible.

2. If the combs are black and there are moths in it, your colony is probably worthless. If not, it should be transferred. The comb is black from the discharges of the drones, the travel of the bees and the rearing of brood, for many years past.

Directions for transferring are given on page 25 of the January number, also on page 96 of the March number.

3. No, they don't use straw to build their combs, nor to sleep on. Some mischievous urchin, likely, had tried to drive the straw in there and they were trying to pull it out

4. Yes.

Hives Tainted With Foulbrood

If hives were tainted with foulbrood three years ago and not used since that time, would they develop foulbrood again if not treated? How would it do to use a painter's blow torch for disinfecting them? We can boil frames, but not hives.

Answer—Hives tainted with American foulbrood are said not to be, and might not be unsafe, but if they are unsafe after the bees are removed from them, all experiments indicate that they would still be unsafe after three years. A painter's or tinner's torch is very efficient in singing either the frames of the hive body, and it takes but a very short time to do it. In that way we remove all suspicion of danger. Indications are that hives which have contained brood diseased with European foulbrood would be entirely safe after that length of time.

Introduce Starters—Transferring

I have bought 3 swarms of bees, and as the man I got them from didn't use starters, they have built the comb in crosswise. It will have to be cut in order to get it out. How am I to do this? They have heavy stores, as they have worked nearly every day this winter. Would it be best to add another super with frames and starters? The hives my bees are in are 8-frame, home-made hives, and I wish to transfer them to 8-frame Hoffman hives later. TEXAS.

Answer.—Since you want to transfer those bees into other hives, we would advise you to put the new hives on top of the old ones and drive the bees and queen up into them by smoking and drumming. After the queen occupies the upper hive, you might place a queen excluder between the two stories. When the brood is all hatched from the lower story, which will be in 21 days after driving them into the upper hive, you may remove that lower story and cut out the combs. You may get rid of every bee in that hive by putting it at the top of the other for a day, with a bee-escape between the two. Use full sheets of foundation in the new hive, well fastened with wires, and you will have straight all-worker combs.

Temperature for Bees' Flight

Will you kindly tell me what temperature has to be reached in winter to induce bees to make a flight? WYOMING.

Answer.—For flight in winter the temperature should be about 50 degrees in the shade. At 55 degrees the bees fly comfortably, provided it be not windy. We have seen bees fly when the thermometer was about 40 degrees in the shade, but many were lost, because they became chilled when they alighted in a shaded spot. Much depends upon the amount of breeze and sunshine. When the sky is overcast with clouds, with an occasional burst of sunshine, the thermometer varies quickly and many bees are lost.

Hives—Transferring—Ants

1. I am just starting in the bee business; have 8 hives in boxes; want to transfer them to modern hives this spring. Which is the best 8, 10 or 12-frame hives?

2. When is the best time to transfer them?

3. The ants have been giving me much trouble. How is the best way to keep them out?

4. I have them in a house 6x12, 5 to the side. They seem to be in fine shape. Would you let them remain in the house, or would you take them out this spring. The house is well ventilated.

5. What is the best plan to keep the moths out? ALABAMA.

Answers.—1. Opinions differ as to size of hives, but 12-frame hives are none too large for prolific queens. Some use 2-story 8-frame hives.

2. The best time to transfer is during fruit bloom, or at the beginning of the honey crop. See the replies in March number.

3. The ants do not get inside of healthy colonies. They gather on top, where there is warmth. If you can find their nest, outside, pour a little gasoline into it and set fire to it. Be careful not to have the gasoline can near when you strike the match. Kerosene, salt, powdered sulphur, dry ashes, are all recommended to keep the ants away.

4. A bee house is all right to keep bees, if each colony has its separate entrance in the wall.

5. To keep out the moths, keep your colonies strong. Weak colonies will be invaded by the moths, especially if they are queenless. Strong colonies never fear the moths, though one or two may manage to get in occasionally.

Non-Yielding Colonies

I have a problem that I have tried to solve for the past three years.

I have four colonies on the top of a hill, about 75 feet above the surrounding country, about half a mile from Grand Rapids, and there is no shade and no chance for any. I use sun boards raised 4 inches above the top of the cover by four blocks on corners, which gives ventilation under the board, which is large enough to keep the sun off the sides of the hive except in the early morning and late in the evening.

There is plenty of sweet clover in the neighborhood to give a good surplus, but I don't get a pound, and not half of my bees swarmed last year.

They go into winter quarters in good condition and come out in the spring healthy and strong. My winter cases allow 3 inches of straw for packing all around and on the top. Now, can you tell me why I don't get a surplus and more swarms? There are no other bees kept within four miles, as I have made quite a careful investigation to find out. If this is a sticker will you please tell me how I can improve the present conditions? I am probably not an expert judge, but I think my winter cases and sunboards are about the best I can use under the circumstances. What do you think?

I use the 7/8x12 inch entrance in winter and about 1¼x12 inch in summer. MICHIGAN.

Answer.—Your management, as stated, appears correct. Perhaps the weather, moisture, etc., have not been propitious in the years that you mention. Perhaps, also, your colonies have too much drone comb and rear drones enough to use up the surplus. Examine your combs; see how much brood your bees rear in the spring months; see that they have enough honey to breed plentifully. If the queens do not fill the brood chamber with brood in May-June, perhaps you had better change them. Get Italian bees, if you make a change.

Bees Fed in Cellar

Please tell me whether I should start my queen bees laying eggs for brood by beginning to feed them with honey in bottom feeder before taking them out of the cellar, say about three weeks, so as to have young bees hatching about the time I put them out, so as to prevent spring dwindling. WISCONSIN.

Answer.—I have never found it advisable to feed the bees in the cellar, except when they were short, and this with very dry food, preferably sugar candy or granulated honey.

When we feed bees to produce brood, there is very soon a great restlessness among the bees of the hive. As soon as the eggs begin to hatch, they want to go after water for the food which they give them. They stir about and many are lost.

It is perhaps not always so, for I have heard the late Mr. Hall, of the Province of Ontario, assert that his bees always came out of the cellar in fine shape and with hatching brood. But if you wish to try it, better do it only on one or two colonies, as an experiment. If your bees had good honey when put into the cellar, they should not have spring dwindling, if taken out only when the weather is so that they can fly regularly.

Crimson Clover

Is crimson clover a good honey plant? ALABAMA.

Answer.—Crimson clover is not grown in the North, but it is reported in Pellett's "American Honey Plants" as of good yield in the South. Bonnier, in France, gives it third place as a honey yielder, and the British Bee Journal states that it is about on a par with buckwheat. It is listed by Niswonger as more important than white clover, in Kentucky.

Winter Losses

Lawrence County, Pennsylvania, lost 90 per cent of her bees the last winter, and as yet we have found no market in which to purchase an adequate supply till too late in the season for any honey. The honey seemed to granulate in the hives and the bees actually starved with ample stores in each box. Packing, winter protection of every kind used was seemingly of no avail.

The colonies that came through the winter best were in old-fashioned high boxes. I have looked at but one of them thus far that had no living bees in, and modern boxes by the hun-

dreds can be examined in every direction full of dead bees and granulated honey. Our white clover harvest was very light in honey production, yet the wild flowers, berries and fruit bloom seemed to produce well for the bees, and there was abundance of buckwheat as well.

Strong colonies and weak, packed and unpackd hives, hives long in stores and hives short in stores alike died, and the same story is read every time I open a new box. Granulated honey. What is our trouble? How can we avoid it next year. PENNSYLVANIA.

Answer.—This is additional evidence that the standard Langstroth hive is too shallow, since deep hives have not perished. Buckwheat honey is condemned in many places, because of its giving the bees diarrhea in long confinements. But this is one of the few instances where it was reported to granulate enough to do damage. We have never had any losses here in the West from granulated honey, the bees apparently managing to consume it without trouble.

Under the circumstances, I would recommend that the buckwheat honey be eliminated from the brood-chamber by extracting it and giving better honey or sugar syrup in its place.

Color of Honey

Will you kindly tell me the color and quality of the honey produced by the Russian olive? W. VIRGINIA.

Answer.—The Russian olive (*Eleagnus hortensis*) is a comparatively new thing in this country. Although the bees work freely upon it, we know nothing of the color of its honey, or its quality. Can anyone tell us?

Moths

What is the best way to treat combs for moths? I see in your magazine C. C. Miller treats with carbon disulphide. I think we could put one box on top of another and have it airtight. Would this carbon disulphide on top of the brood not hurt the brood? I see another by E. L. Mall, Michigan, that way to treat would cost some. I want the cheapest way. Let me know and oblige.

I lost some bees this winter. I think I kept them too warm. I want to use the broodnest again, for they are in good shape, and I thought I would try it, if it don't hurt. S. DAKOTA.

Answer.—Either of the methods you mention is good to destroy moths. We would give the preference to that of Mr. Pangburn, on page 90 of the March number. But Dr. Miller succeeds well. As to the disulphide hurting the brood, all that needs to be done is to air the combs a little while before using them in a hive. It will have no bad effect upon the brood. Of course you should not use it "on top of the brood nest," when the bees are in it. It would kill both bees and brood.

Combs of hives in which bees have died will be all right to use in the summer, if they have no foulbrood in them.

Wild Bees

1. Is a colony of wild bees in the roof of a building worth saving?

2. Can it be hived without building a scaffold and tearing off the weatherboards, as the entrance is high up under the eaves? If so, what is the best way to do it? NEW JERSEY.

Answers.—1. A colony of bees in the roof of a building may be as valuable as any other, when once brought down into a hive. There is no such thing as a colony of *wild* bees, since all bees are wild if allowed to swarm and get away.

2. As to the hiving of them without building a scaffold, we cannot tell. Perhaps one could get at them with less trouble or expense from the inside of the building, even if a little plaster had to be torn off. If they are likely to be among the rafters, it will be necessary to tear the wall on the inside. They may be easily taken out, hived and carried out of the house at night after they have gone in and quieted down.

If you are not accustomed to handling bees, better get an expert, with a bee smoker, to help you out. There is no need of getting stung, and the colony will be worth the expense, after they are hived.

Straight Combs—Deep Frames

1. An old beeman said you can put sheets of building paper between the frames in a hive and the bees will build straight comb. Can that be done, and what is the result?

2. Is a 16-inch brood-chamber too deep? I have a home-made hive 22x13x16 in. deep; it seems large to me.

3. Will bees work just as well with the frames crosswise of the entrance as to have them lengthwise of the hive, with bee entrances at the end? IOWA.

Answers.—1. If you were to put a swarm in a hive with sheets of building paper between all the frames, the bees might build combs in each of those frames, but the likelihood is that they would swarm out of that hive and hunt for a more convenient home. But some combs might be secured by that method. But it is much better to use guides of comb foundation, or, still better, to use full sheets. It will pay.

2. A 16-inch brood-chamber would be too deep for convenient lifting out of the frames. when you wanted to inspect the colony. Better make it 13 deep and 16 long. But this is an odd size, and you will find it more profitable to use some standard size of frame.

3. Yes, the bees will work just as well with the frames crosswise, although beekeepers prefer, as a rule, to have them lengthwise.

Moving Cells; How and When

1. Which is the best way to rear young queens in upper stories with a special opening at the back? Supposing that I would have 25 or 30 cells nearly ready to hatch, how could I dispose of those cells by putting one in each upper story; should there be some brood put up in these upper stories, or if there is some already should it be removed completely?

2. Another thing I want to know, should it be done during a honey flow? QUEBEC.

Answers.—1. There must be a queen excluder between the stories and it is better that there should be brood in the super where the young queen is to hatch. Brood ready to hatch is best. The old queen must be below.

2. All manipulations succeed best during a honey flow. If there is a scarcity, we can easily understand the bees do not care to rear a young queen, especially if the old one is still prolific.

Bees Die in Cellar—Prices of Honey

1. Last fall I put my bees in my neighbor's cellar. I guess it must be too damp in there for them; anyway, one swarm is dead and an another is nearly so. The tops of the frames are all covered with brown spots and also the combs have these spots on them, and it has a bad smell, too. Do you think that this is dysentery?

2. Do you think that I could use these combs again in the broodnest or for extracting? The combs are mouldy on the bottom and have some dead bees in the cells.

3. Do you think that we will always get a fair price for our honey? Do you think that there will always be a good demand for it? MICHIGAN.

Answers.—1. Very likely that cellar is too damp. Perhaps it did not have enough ventilation. In such a cellar, it is advisable to place the hives on a shelf, as high up as possible. In any cellar, the hives that are nearest the floor fare the worst. We ascribe it to greater moisture there. Those brown spots are undoubtedly the discharges of the bees. Probably your honey was not of very good quality.

2. Yes, those combs can be used again. Place them in the center of a strong colony, one at a time, during the summer, and you will see how quickly the bees will cleanse them.

3. We will certainly not always obtain 30 to 60 cents per pound for honey, any more than the farmer will get 15 to 23 cents for hogs. But if the beekeepers organize, as many other industries do, there is no reason why we should not secure a fair price for our honey. In a country that consumes 80 pounds of sugar per head, it ought not to be difficult to sell from one to four pounds of honey per head. This would mean a great deal more honey consumed than we have ever produced. We will create the demand, if we try.

Georgia Beginner

Georgia is my home State, and I am very much interested in the beekeeping industry. I have begun to do a lot of correspondence with the beekeepers to try and persuade them to organize a State Association. Suggestions from you will be greatly appreciated.

Answer.—The time is evidently ripe for a Georgia Association, for Mr. J. J. Wilder sent a call for a meeting, and the Georgia State Beekeepers' Association organized, at Waycross, July 3. An account of the meeting appears this month in our columns. Georgia is a good State for bees and there is no reason why a State association would not succeed there.

Selling Honey

I have had some trouble in selling my honey, as there are other beekeepers who are better known and have a better trade than I have. Would it be advisable to advertise in the local weekly paper regularly or have a good-sized advertisement, changed in every issue, or would it be likely that the competitors would try and run in opposition to me? What is the best method to follow? WISCONSIN.

Answer.—"Advertise judiciously." That was the motto of a large advertising agency, and it is very good. You may spend a large amount of money in advertising and get no returns, if you don't do it "judiciously."

A very good way to advertise is to put a sign at your door, if you are along a traveled road. "Pure Honey for Sale," in large letters, will help dispose of a great quantity of honey, especially if you are along an automobile road A "local" in your weekly paper will do when you have the honey ready for the customer. Dr. Bonney is one of the best advertisers we know of, and every beekeeper who reads the bee papers has heard of "Bonney Honey." A display in the window of your grocer will prove very helpful. But when you sell honey, be sure and put it up in clean, attractive shape, so that your customers will come again.

Honey Board for Wintering—Demaree Plan

1. I yesterday finished going through my colonies for the first time, and I found the litter in the chaff-trays unusually moist, when often formerly it was so dry that it could be put away with the trays for use next time. I prepared my colonies as follows: (1) Upon the frames, directly, an improved Hill device, consisting of a piece of wire netting about 12x12, secured to two sticks along ends and two sticks equi-distant between; the four sticks crosswise as to frames. (a) On this a piece of carpet;;(b) thereon chaff-tray (c) upon the latter the cover board as belonging to the colony. Among my colonies there are 30 with one winter case for each, and as with them there was not place inside enough to hold the cover of the hive—especially as to the so protected hives—it seemed well to me to put those cover-boards also inside, and then on that the cover of the winter case. But in every case the cover boards were inside. Where I have not winter cases, I have double-walled hives. This has been an unusually severe winter. What I would like to ask about is, what you would think, in such a case as I have described above, of leaving the cover boards out of the hives or winter cases as well? Last fall I was afraid that without the cover boards it might not be warm enough inside of hives; now I question

whether with those cover boards left out there would have been a readier escape of moisture and thus not that wetness in the chaff. On the whole, wintering was pretty good. My loss is about 12½ per cent while in 1918 it was 25 per cent, also, after a severe winter; yet the season that followed was, with me, a record-breaker as well as an eye-opener of what might be achieved. It would seem that all the auspices for the coming season are good.

2. Here is another feature: Last year, of my 79 colonies, I gave 17 the Demaree method. Neither then nor the year before did it work well with me. Both times I put queen with one of two poor frames of brood with foundation under excluder (10 frames, and few 12 frames). Both seasons the bees did next to nothing down stairs, aside from fooling with that foundation. So, especially last year, I felt perplexed, and had strong misgivings as to what would result upon reducing, for winter, the Demareed to one story. There seemed to be bees enough, but they seemed to all reside up stairs. So I had to fabricate living conditions below, with what little brood there was, and frames of honey. Now I find that things come out O. K. Out of the 17 all but two are O. K., with brood and queen; also eggs. Such two dead are about in the same proportion as the loss as a whole. Yet I have my mind made up that I do not like such outcome of the Demaree, so I will do the Demareeing later, and then will try to the utmost not to use foundation below. I ask, then, how I had best make up the lower story with the queen under the excluder?

PENNSYLVANIA.

Answers.—1. The moist chaff in the trays indicates that the bees would have been in very damp condition if you did not use those trays, over the combs, as you did. A tight-fitting cover would have kept all that moisture in the brood-chamber. I would say that those bees were packed properly. The wonder is that you lost 12½ per cent. We call this a big loss, with packing similar to yours. Regarding what you call the cover board, if it is what is commonly called a honey board, it would be better to leave it out entirely till the chaff tray is removed in spring.

2. The Demaree plan is to put the brood above, leaving the queen with only one or two brood-combs below, with a queen excluder between. If that is the method you followed, the failure was probably due to a failure in the crop. With a strong colony, a comb of brood with the queen and the balance in foundation would be as good a plan as we could suggest, unless you have combs of worker cells already built, which would be still be better.

How Many Eggs?

What is the maximum number of eggs that a queen will average per day for 21 days?

MISSISSIPPI.

Answer.—I'm not sure I can answer that. I think the number is greater than it was 50 years ago, and I suspect it will be still greater 50 years from now. Of course there is a great difference in queens, but as the maximum is desired we are supposed to take the best.

It may not be out of the way to estimate that such a queen under favorable circumstances will occupy 16 Langstroth frames during 21 days, figuring that the eggs will fill three-fourths of the inside measurement of the frame. Putting it in round numbers, it would not be far out of the way to say that the eggs would occupy 100 square inches, or 200 square inches when counting both sides of the comb. In 16 frames there would be 3,200 square inches. There are 28 13-15 worker-cells to the square inch, nearly 29. Call it 29 for convenience in figuring, and 3,200 times 29 will give us 92,800 cells filled by the queen in 21 days, or an average of 4,419 per day.

I do not vouch for the correctness of this answer, and if anyone protests it I am not ready to spill any blood in its defense. But please remember that this is figuring on utmost possibilities, and it is possible that no queen has actually achieved the figures given.

Increase

When may be the time of the year to increase bees to the best advantage?.

I have 40 colonies now and wish to increase to 150 as soon as possible. WISCONSIN.

Answer.—The best time to increase your colonies is during the honey crop. By making artificial divisions, keeping all colonies breeding, buying queens and supplying the colonies with comb foundation in full sheets, you might, in a very good season, succeed in making the amount of increase that you mention. But to be safe it is better not to try to more than double your colonies in any one season. This is the advice of all teachers in beekeeping. Get good books and post yourself. You will find it profitable.

Book Review

"Productive Small Fruit Culture," by F. C. Sears, is the latest addition to the Lippincott series of farm manuals. Beekeeping and fruit growing is a combination which has proved ideal for many of our readers. This volume treats strawberries, raspberries, blackberries, currants, gooseberries and grapes with full directions for their culture. The author is Professor of Pomology in the Massachusetts Agricultural College and a well-known authority on fruit growing. The book contains 368 pages, well illustrated, and sells at $2.50. It may be obtained from the J. B. Lippincott Co., of Philadelphia, or at this office.

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The Eastern New York Beekeepers' Association

The Eastern New York Beekeepers' Association will hold their fifth annual mid-summer meeting and basket picnic at the home apiary of Mr. Augustus Sweet, near West Berne, Albany County, N. Y., on Saturday, August 7, at 10 a. m.

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31x4	7.90	2.15	35x5	12.40	3.40
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Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

BEES AND QUEENS

See Atwater's classified honey adv't.

GOLDEN and 3-banded queens in reasonable quantities by return mail; 1, $2; 6, $10.
Allen Simmons, Claverack, N. Y.

TENNESSEE 3-band Italians, reared from the best mothers and mated to select drones, they are vigorous and prolific. Pure mating and safe arrival guaranteed. Each, $1.25; 6, $7; 12, $12.
Wm. F. Morris, Hendersonville, Tenn.

FOR SALE—Select golden Italian queens by return mail. Untested, $1.50 tested, $2.50.
Wallace R. Beaver, Lincoln, Ill.

FOR SALE—Untested golden Italian queens, $1.25; tested queens, $2.50; hybrids, 40c.
J. F. Michael, Rt. 1, Winchester, Ind.

FOR SALE—Goldens that are true to name. Select untested, one, $1.50; six, $7.50; 12, $13.50; 50, $55; 100, $100.
Garden City Apiaries, San Jose, Calif.

NUCLEI of Italian bees, with queens; 2-frame nucleus, $5.50; 3-frame, $6.75.
Frank Bornhoffer Mt. Washington, O.

QUEENS OF QUALITY—Our Hand-Moore strain of three-banded Italians are beautiful and good honey gatherers. Bred strictly for business. Untested, $1.50; half doz., $8; select,, $2. W. A. Latshaw, Clarion, Mich.

FOR SALE—Full colonies of bees (with Italian queen), in 10-frame Root Co. hives, $14 each, 2 for $27.
Joseph Harrison, White Pigeon, Mich.

FOR SALE—Select northern leather-colored Italian queens, carefully bred for utility, Untested, $2; tested, $3;; nuclei, $2. Guaranteed pure. E. J. Fishhaber,
1320 Genesee Ave., Saginaw, Mich.

QUEENS, ITALIAN QUEENS—I will have about 100 untested queens a month surplus, for June, July and August. Who wants them at $1 each? Less than 100, $1.25 each.
W. H. Moses, Lane City, Texas.

FOR SALE — Queens of Dr. C. C. Miller strain, untested, $1.50 each, $15 per dozen; tested, $2 each, $22 per dozen. Safe delivery and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

NOTICE—No more queens or bees for sale this season. Robert B. Spicer.
Wharton, N. J.

FOR SALE—Highest grade 3-banded Italian queens, ready June 1. Queens and drone mothers are selected from stock of proven worth in hardiness, gentleness, honey production and disease resisting qualities. Untested, each, $1.25; 6, $6.50; 12, $12; 50, $47.50; 100, $90. Your correspondence will receive prompt attention, and I guarantee satisfaction.
A. E. Crandall, Berlin, Conn.

WHEN BETTER QUEENS are raised Victor will raise them. Italians, mated, $1.25 each; six, $7; twelve, $13.50.
Julius Victor, Martinsville, N. Y.

FOR SALE—Large, hardy, prolific queens, 3-banded Italian only. Pure mating and safe arrival guaranteed. One queen, $1.30; 6, $7.50; 12, $13.50; 100, $110.
Buckeye Bee Co., Box 443, Massillon, Ohio.

FOR SALE—Pure Italian queens. Select untested, 1, $1.50; 6, $7.50; 12, $13.50; 50, $55; 100 and over, each $1. Also packages and nuclei. Golden Star Apiaries, San Jose, Cal.

BOZZALLA LIGURIAN QUEENS — Obtain your queens from Italy. We take the risk of death in the mail. Select tested Italian queens posted direct from Enrico Bozzalla's apiaries to the customer, $3.50 each. Remit to sole agent, H. M. Stich, Riccartsbar Ave., Paisley, Scotland.

FOR SALE—My famous three-banded Italian queens, $1.25 each, six for $7, from June 1 to November. J. W. Romberger, Apiarist,
3113 Locust St., St. Joseph, Mo.

QUEENS—Italian queens of excellent stock will be ready to mail June 1. Untested, $1.50 each; 6, $7.50; 12, $14.
J. D. Harrah, R. No. 1, Freewater, Ore.

FOR SALE—Italian queens that will give results; untested, $2; tested, $3; breeders, $10.
A. Beyer, Krotz Springs, La.

BOOK YOUR ORDERS for QUEENS now—Goldens, $2; tested, $3; banded, $1.50; tested, $2.50; six or more 10 per cent less.
Clover Leaf Apiaries, Wahoo, Neb.

FOR SALE—Italian queens. Prices for untested, in June, $1.50 each, $8.25 for six, $16 for twelve; tested, $2.50 each from July 1 to October 1; untested, $1.25 each, $7 for six, $13.50 for twelve; tested, $2 each; Virgins, 75c each. Mismated queens will be replaced if returned in 30 days. Dead queens will be replaced if returned to me by return mail.
R. B. Grout, Jamaica, Vt.

FOR SALE—Hardy Italian queens, $1 each
W. G. Lauver, Middletown, Pa.

FOR SALE—Superior California Queens—Western beekeepers may now secure our famous Italian queens at the following prices: One untested, $1.25; fifty untested, $57.50; one hundred untested, $100. Orders filled in rotation; first deliveries March 1, 1920.
Edson Apiaries, Gridley, Calif.

FOR SALE—Golden and three-band queens. Untested, April, May and June delivery, $1.25 each; $13.50 per doz. Satisfaction.
R. O. Cox, Rt. 4, Greenville, Ala.

FOR SALE—3-banded Italian queens from best honey-gathering strain obtainable; (no disease). Untested queens, $1.25 each; 6, $6.50; 12, $12. Select untested, $1.50 each; 6, $9; 12, $16. Tested, $2.50 each. Safe arrival and satisfaction guaranteed. Your orders filled promptly. W. T. Perdue & Sons,
R. No. 1, Fort Deposit, Ala.

MOTT'S Northern Bred Italian Queens— I have breeding mothers place in the south for April and early May queens. Plans "How to Introduce Queen and Increase," 25c. If you want beauty with the best of summer and winter laying birds, try a setting of my Golden Campines.
E. E. Mott, Glenwood, Mich.

FOR SALE—Leather colored Italian queens, tested, until June 1, $2.50; after, $2; untested, $1.25; $13 per dozen. Root's goods, Root's prices. A. W Yates,
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FOR SALE—3-banded Dr. Miller and Walker's queens after June 10. (Am booked full until then.) $1.25 each, 6 for $7, 12 for $13; selects, 25c each higher.
Curd Walker, Jellico, Tenn., R 1, Box 18.

FOR SALE—A. I. Root strain of resisting and honey-gathering, leather-colored Italian queens. Untested queens, $1.50 each, 25 or more $1.40. Tested, $2.50 each, 25 or more, $2.25. Select tested, $3. For larger amounts write. A. J. Pinard, Morgan Hill, Calif.

1920 PRICES for "She Suits Me" queens. Untested Italian queen, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.50 for ten; $1.10 each for 25 or more.
Allen Latham, Norwichtown, Conn.

FOR SALE—After April 15, our golden Italian queens, untested, one $1.50 or $15 per doz.; select untested, one, $1.75 or $18 per doz.; tested, $3 each. Safe arrival guaranteed. Tillery Bros.,
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BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
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"QUALITY" THREE-BANDED ITALIANS from excellent stock; untested queens, 1, $1.50; 6 for $7.50; 12 for $13.50; 50 for $55; 100 for $100. N. J. James,
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BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere.
Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

HONEY AND BEESWAX

See Atwater's classified honey adv't.

WANTED—Honey extractor, 2-frame reversible 9½x16. State kind, condition and price.
W. F. Tilton, Kansas City, Mo.

WANTED—Extracted and comb honey in bulk or tin, or glass jars; also maple syrup.
Paul Thomae 1131 3rd St., Milwaukee, Wis.

GRANULATED HONEY ADS, $1 per thousand; 100, 20c. Dr. Bonney,
Buck Grove, Iowa.

FOR SALE—Finest Michigan raspberry, basswood and clover No. 2 white comb, $5.50 per case; No. 1, $6; fancy $6.50; extra fancy, $7; 24 Danz. sections to case. Extracted, 60-lb. cans, 25c per pound.
W. A. Latshaw, Clarion, Mich.

WANTED—No. 1 clover extracted honey.
E. Strudel, 1461 Richard St., Milwaukee, Wis.

FOR SALE—About 40,000 lbs. fancy white clover honey; price f. o. b. Kalona, Ia., case, 2 60-lb. cans, 22 cents a pound; case 1 60-lb. can, 23 cents a pound. Sample bottle by mail, 20 cents J. M. Gingerisch, Kalona, Ia.

WANTED—Beeswax. At present we pay 38 cents per pound in cash and 40 cents in trade for clean, yellow wax, delivered Denver.
The Colorado Honey Producers' Association, Denver, Colo.

HONEY—Supply your customers, finest alfalfa-clover honey, extra strong cases, probably ready in July.
E. F. Atwater, Meridian, Idaho.

WANTED — Extracted honey. State how packed. Send sample, lowest cash price.
P. Outzen, White Bear Lake, Minn.

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you. The Deroy Taylor Co.,
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WANTED—White clover or light extracted honey. Send sample; state how honey is put up and lowest cash price delivered at Monroe; also buy beeswax.
E. B. Ross, Monroe, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.

WANTED—Comb and extracted honey. The L. H. Snider Apiaries, Auburn, Ind.

FOR SALE

See Atwater's classified honey adv't.

FOR SALE—100 cases 15-ounce honey jars, 2 dozen to the case, $1.25 per case. C. E Dustman, Watertown, Minn.

FOR SALE—Silver Spangled Hamburg chickens; best layers on earth. Elias Fox, Union Center, Wis.

FOR SALE—Root's 8-frame power extractor (12-inch pockets); Peterson capping melter separating can, and Root's steam heated uncapping knife, with copper boiler; have never been used. Arthur J. Schultz, Ripon, Wis.

FOR SALE—25 colonies in standard 2-story hives, located at Fairhope, Ala. M. Michaels, Loraine, Wis.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog. A. E. Burdick, Sunnyside, Wash.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled. Superior Honey Co., Ogden, Utah.

SUPPLIES

See Atwater's classified honey adv't.

FOR SALE—Good second-hand double-deck comb honey shipping cases for 4¼x4¼x1⅞ sections, 25 cents per case, f. o. b. Cincinnati; terms cash with order. C. H. Weber & Co., 2146 Central Ave., Cincinnati, O.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati. Terms cash with order. C. H. Weber & Co., 2146 Central Ave., Cincinnati, O.

SEND us a list of goods wanted and will quote you lowest prices. We are the money-saving house. Price list free. Try us. H. S. Duby & Son, St. Anne, Ill.

WANTED

See Atwater's classified honey adv't.

WANTED—High grade extracted honey; also high grade section honey in 4x5 size. Merton Church, Highland Park, Ill.

WANTED—Medium size extractor; must be in perfect condition. Robert Evershed, Irondequoit, N. Y.

WANTED—Several Banat queens, quickly. Mack Walmer, Honey Creek, Wis.

WANTED—Your old combs, cappings and slumgum to render into beeswax. We get enough more wax with our well equipped presses to pay for our work. Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices. Superior Honey Co., Ogden, Utah.

SITUATIONS

See Atwater's classified honey adv't.

WANTED—All year round position with bees, preferably near New York. Moderate salary with opportunity for advancement desired. Daniel B. Hotaling, Chautauqua, N. Y.

WANTED—Beeman, immediately. Must be steady and industrious. Can give steady employment. Give full particulars and wages desired in first letter. W. J Stahmann, Clint, Texas.

WANTED — An experienced beeman and helper; will pay to suit right parties; want them as soon as possible. F. B. P., care American Bee Journal.

WANTED—One or two good queen-rearing men to begin work February 15, 1921. Nueces County Apiaries, Calallen, Texas.

WANTED—One experienced man, and students or helpers, in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference and wages wanted. W A. Latshaw Co., Clarion, Mich.

MISCELLANEOUS

See Atwater's classified honey adv't.

WILL EXCHANGE 5 passenger Maxwell car, 1912 model, in good running condition, for bees or honey. Harry Brown, Vermont, Ill.

WRITE for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

BLACK SIBERIAN HARES—Enormous sizes, delicious meat and beautiful fur. Write for information and prices. Siberian Fur Farm, Hamilton, Canada.

BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

Send Us Your Inquiries

A. H. RUSCH & SON CO.

Reedsville, Wis.

Statement of the Ownership, Management, Circulation, Etc., required by the Act of Congress of August 24, 1912, of **American Bee Journal,** published monthly at Hamilton, Illinois, for August, 1920:

STATE OF ILLINOIS, ss.
COUNTY OF HANCOCK.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared V. M. Dadant, who having been duly sworn according to law, deposes and says that she is the Business Manager of the American Bee Journal, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, associate editor, managing editor and business managers are:

Publisher, American Bee Journal, Hamilton, Ill.

Editor, C. P. Dadant, Hamilton, Ill.

Associate Editor, Frank C. Pellett, Hamilton, Ill.

Managing Editor, M. G. Dadant, Hamilton, Ill.

Business Manager, V. M. Dadant, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: None.

(Signed) VALENTINE DADANT.

Sworn to and subscribed before me this 8th day of July, 1920.

MARY McCOY, Notary Public.

My commission expires January 17, 1924.

BEE SUPPLIES

FALCON LINE

Best goods made. Get our big discount sheet before buying.

C. C. CLEMONS BEE SUPPLY COMPANY

128 Grand Ave.

Kansas City Mo.

WANTED—Beekeeper for apiary at Lilly Orchard; married man able to grade and pack fruit preferred. Come and get a job during apple picking and size up the location. Can give work in orchard when not busy with bees. H. W. Funk, Normal, Ill.

QUEENS **QUEENS**

OUR ITALIAN

GOLDEN AND THREE-BANDED STRAINS

The demand for our Famous Disease-Resisting, Hardy, Long-Lived Honey-Gathering Strains is greater than ever before. Send for descriptive circular and price list. Book your order now and assure the prompt delivery of queens when wanted.

CLEANING UP DISEASE

"The six queens purchased of you arrived and are doing better than any other queens we ever had. We bought three dozen from another breeder and introduced foulbrood with them. The introduction of your queens in six of these colonies stamped out the disease." Buffalo, N. Y. (Name on request.)

HARDINESS AND HONEY GATHERING

"The 25 colonies of bees purchased of you, although only one mile from Lake Erie, and therefore exposed to high, cold winds, in fact this is the windiest place along the Great Lakes, wintered with only insignificant loss. As for honey, they averaged 175 pounds each of surplus, did not swarm, and gave an artificial increase of 39 per cent, which is as fine a record as can be had in this locality, especially when the work is done entirely by amateurs." North East, Pa. (Name on request.)

Untested queens, guaranteed to be purely mated. Price $1 each, or $90 per 100; select, $1.25 each, or $110 per 100. Small orders filled by return mail. Wings clipped free.

M. C. BERRY & CO., Hayneville, Ala., U. S. A.

EXTRACTING BEE-MEN WANT "falcon" QUEENS

WE spare no pains in giving our patrons the best bred queens. Good queens are vital to the success of a honey crop and to building up, strong "producing" colonies.

Price List of "falcon" Three-banded Italian Queens
July 1 to October 1

	1	6	12
Untested	$1.80	$ 9.90	$18.00
Select Untested	2.00	11.10	20.00
Tested	2.50	14.40	29.00
Select Tested	3.00	17.40	33.60

WRITE FOR OUR RED CATALOG

W. T. FALCONER MANUFACTURING COMPANY
Falconer (near Jamestown) N. Y., U. S. A.

"Where the best Bee-Hives come from"

FOR SALE On the following list of goods you can make a saving of from 20% up, if you act promptly

Shipping Cages for Pound Bees—New

1500 1-lb packages, complete ---------- $ .40
470 2-lb. packages, complete ---------- .52
60 1-lb. packages, nailed, not screened---- .30
500 2-lb. packages, nailed, not screened---- .40
140 3-lb packages, complete ---------- .75

These are the packages recommended by the Texas Beekeepers' Association.

Queen Rearing Nuclei

975 Standard 4-frame nuclei, Hoffman frame, nailed and painted, at $1. 140 8-frame hives divided in the center, N. P., at $2. 45 10-frame hives divided in 2 and 3 parts, at $2.10

10-Frame Hive Bodies

110 10-frame hive bodies, empty, N. P., at 80c. 150 10-frame hive bodies, with foundation, N. P., at $2.20. 40 10-frame hive bodies, with wired frames, N., at $1.30. 10-frame covers, N. P., at 72c. 10-frame bottoms, reversible, N. P., at 60c. 8-frame telescope metal roof covers, N. P., at $1. 10-frame bottoms in flat at 50c. 350 10-frame excluders at 55c and 65c. Medium brood foundation, Dadant's, 67c per lb. Light brood, 70c per lb. Thin surplus for shallow frames, 72c per lb. Write for further information and bargains.

W. J. FOREHAND & SONS, FORT DEPOSIT, ALA.

PURE ITALIAN QUEENS

The old reliable three-banded stock bred strictly for business. My select untested are laying before being caged. Price after August 1, $1.50, 12 or more $1.25 each. Tested $2.00, breeders $5.00. Circular free.

J. E. WING, San Jose, Calif.

155 SCHIELE AVENUE

QUINN'S QUEENS OF QUALITY

Have no superiors—"There's a reason." Are Mendelian bred, good qualities accentuated. Gray Carniolans, Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease-resistant, white comb builders—they deliver the goods.

ITALIANS, 3-banded, line bred, pedigreed; need no boosting; they speak for themselves.

CHAS. W. QUINN, Sabot, Va.

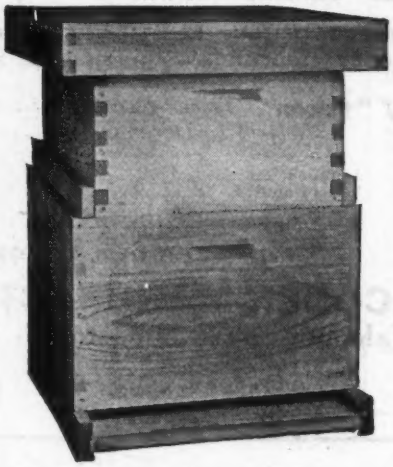
HONEY FINEST Michigan Raspberry, Basswood and Clover comb and extracted honey. Unexcelled for quality.

Crate 6 cases 24 sec. Fancy Comb $39.00
Crate 6 cases 24 sec. A No. 1 Co'b 36.00
Crate 6 cases 24 sec. No. 2 Comb 33.00
Crate 6 cases 24 sec. Extra Fancy 42.00
Two cans 120 lbs. Extracted.....30.00

Send Today for Free Sample

W. A. LATSHAW COMPANY, Clarion, Michigan

MODIFIED DADANT HIVE



Glance at this illustration to compare this hive with "Standard" Langstroth hive.

Your present brood equipment can be put above the Modified Dadant hive used as full-depth supers.

You get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.

You get deep frames, large one-story brood-nest, frame space ventilation, excellence in wintering, swarming easily controlled.

MODIFIED DADANT HIVE FEATURES

1. Eleven frames, Langstroth length, Quinby depth.
2. Frames spaced 1½ inches for swarm control.
3. Extracting frames 6¼ inches deep.
4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.
5. Langstroth "Standard" equipment easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

G. B. LEWIS COMPANY, Watertown, Wisconsin
DADANT & SONS, Hamilton, Illinois

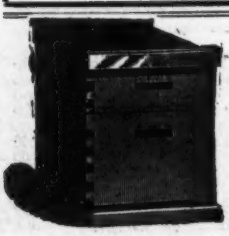
BEE SUPPLIES

The largest and oldest Bee Supply manufacturer in Minnesota can offer you BEE WARE that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Write to MONDENG about hives and supers. Made of polished white pine.

A word to the wise is usually—RESENTED?
Send for my 1920 Catalog and Price List.
LOOK for the best bargains I've presented.

Will take your Beeswax in Trade at Highest Market Price

CHAS. MONDENG
159 Cedar Lake Road MINNEAPOLIS, MINN.

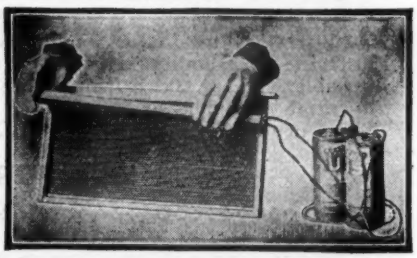


EARLY ORDER DISCOUNTS WILL

Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.
or J. W. ROUSE, Mexico, Mo.



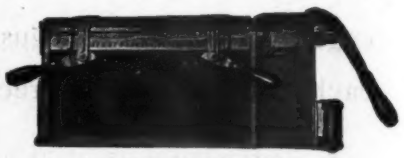
ELECTRIC IMBEDDER

Price without Batteries $1.25
Not postpaid.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

For sale by all bee supply dealers

Dadant & Sons, Manufacturers HAMILTON, ILL.



PAT JULY 30, 1918

C.O. BRUNO NAILING DEVICE

Made for the Huffman Brood Frames. A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

PRICES OF QUEENS

	Nov. 1 to June 1			June 1 to Nov. 1		
	1	6	12	1	6	12
Untested	$2.00	$9.00	$16.80	$1.50	$8.00	$14.50
Select untested	2.25	10.50	18.00	2.00	9.50	16.00
Tested	3.00	16.50	30.00	2.50	12.00	22.00
Select tested	3.50	19.50	36.00	3.00	16.50	30.00

Breeders $7.50 to $15.00

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

"The queen that I got from you last season made honey when the other bees were taking lunch to the fields with them (when they went at all)". H. M. TICHENOR, Centertown, Ky.

2058 Yonge St., Toronto Canada March 19, 1920.

Friend Davis:

The colonies headed by your queens are through this far in fine shape. It was a pleasing sight to see them take their first flight (after 4 months) this last week. What is the price of queens to us folks on this side this year, and when could you start to send me up some? A reply would oblige Yours Respectfully,

P. F. OLIVER.

No Nuclei, Full Colonies or Pound Packages.

BEN G. DAVIS, Spring Hill, Tenn.

MARSHFIELD GOODS

BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

Our Catalog is free for the asking

MARSHFIELD MFG. CO., Marshfield, Wis.

BEEKEEPER'S SUPPLIES

QUALITY AND SERVICE

The honey flow is now on. Honey means Dollars to you; don't lose a pound of it by being short of Supplies. We carry a full line of Bee Supplies ready for prompt shipment to you—Hives, Frames, Supers, SECTIONS, Foundation, Extractors, Smokers, Comb Honey Shipping Cases, Tin Honey Cans and Pails. Our goods are ideal in quality and workmanship. Learn more about our goods by sending for our catalog.

AUGUST LOTZ COMPANY, Boyd, Wis.

ITALIAN QUEENS

The Old Reliable Three-Banded Italians. The best allround bee to be had. Queens ready to mail April 1. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May:

Untested,, $1.50; 6, $8; 12, $15
Tested, $2.25; 6, $12; 12, $22.
Select tested. $3 each.

Descriptive circular and price list free.

JOHN G. MILLER,
723 C Street, Corpus Christi, Texas.

PORTER BEE ESCAPE

SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lowistown, Illinois, U. S. A.

(Please mention Am. Bee Journal when writing)

Send for Catalogue of Honey Labels and Stationery.
American Bee Journal

BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping boxes and 3-frame nucleus colonies.

I. J. STRINGHAM, Glen Cove, N. Y.
NASSAU, CO.

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

Write for Price List and Booklet descriptive of

HIGH-GRADE Italian Queens

JAY SMITH
Route 3
Vincennes, Ind.

HERE THEY ARE MR. BEEKEEPER

at Newark, Wayne Co., N. Y., ready to answer your call. The best of everything. Just read this list: Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Presses and other supplies, Dadant's Unexcelled Foundation, all standard weights and sizes; also the Electric Wire Imbedder, Bingham Uncapping Knives, including steam heated, with oil stoves and generators. Bingham Smokers, all sizes, with geunine leather bellows; Root's Extractors, all sizes of hand and power machines; Bee Books, written by all leading authors in beedom.

All sizes of Friction Top Pails, and also 60-lb. Cans, new and second hand. Also Cement-coated Nails for nailing beehives and supplies; and all sized spools of Tinned Wire, Bee Brushes, Feeders, Queen-Rearing Cages, Bee Gloves and Capping Melter, and all practical supplies you will need.

A market for your honey or wax and a plant to render your old combs and cappings.

Over 1,000 beekeepers took advantage of this service station at Newark in 1919 for the first time. Now all together for a greater 1920.

New catalog free. Our discounts will save you money.

THE DEROY TAYLOR CO., Newark
(Wayne Co.) New York.

MR. BEE KEEPER

You desire your beekeeping to become successful. Then use the best methods and supplies available. These supplies are furnished by us in Dadant's Foundation and Lewis Bee Supplies.

Send us samples of your honey and quote your price.

WESTERN HONEY PRODUCERS, SIOUX CITY, IOWA

Send list of your needs or request for new Catalogue to Department B.

ROOT GOODS—PROMPT SERVICE

SHIPPING CASES **HONEY CONTAINERS**
FOUNDATION **GLASS JARS**

WERTZ SEED CO., SIOUX CITY, IOWA

ROOT DISTRIBUTORS—LET US SAVE YOU FREIGHT COSTS—GET OUR PRICES

QUEENS, SELECT THREE-BANDED ITALIANS

Reared from the best mothers and mated to select drones.

Prices of Queens

	May 1st to June 1st			June 1st to July 1st			July 1st toNov. 1st		
		6	12	1	6	12	1	6	12
Untested	$2.00	$ 9.00	$16.80	$1.50	$ 8.50	$14.50	$1.30	$ 7.50	$13.50
Select Untested	2.25	10.50	18.00	2.00	9.50	16.00	1.75	8.50	15.00
Tested	3.00	16.50	30.00	2.50	12.00	22 00	2.00	10.00	18.50
Select Tested	3.50	19.50	36.00	3.00	16.50	30.00	2.75	15.00	27.00

Orders booked now for May delivery. Pure mating, safe arrival and entire satisfaction guaranteed. Wings clipped free. Write for descriptive circular.

HARDIN S. FOSTER, Columbia, Tenn.

Crop and Market Report

Compiled by M. G. Dadant

For our August report we asked reporters to answer the following questions: 1. How is the crop in your section? What will be the per colony average? 2. Have you sold any of your honey, and at what price. 3. Any offers?. 4. What do you expect to realize from your crop?

THE HONEY CROP

Throughout the New England State the honey crop has been up to normal and part of the section claim a very poor crop, indeed. It was caused partly from the fact that bees were in such poor condition and there were such heavy losses, and partly because honey plants were not in the best condition for the flow.

In New York the conditions seem to be better, some sections reporting a very good crop, while others state there will hardly be a half crop. In this section the crop will be cut down a good deal in some localities by the prevalence of American foulbrood.

In Pennsylvania there will be a small crop, probably 25 per cent of normal, while Ohio seems to have a very fair crop, seeming much better than last year. Turning to the Southern States, we find that the crop, so far, has been about 50 per cent of normal, except in Louisiana, which claims the best year in four or five years, with an average of 100 pounds or more per colony. In Mississippi and Alabama the sweet clover flow was practically a failure and their honey will not amount to a great deal. Florida and Georgia have averaged about 30 to 35 pounds per colony, so far, but are expecting a better fall flow. In Texas the crop has been above normal and will probably reach 100 pounds per colony by the time the present flow is over. Around there the beekeepers are very well satisfied, indeed, and have been finding ready sale for their honey, thanks to their well equipped Association.

In Indiana and Illinois the flow has been better than expected, although nothing phenomenal. The average will probably be 30 pounds per colony, whereas nothing was expected, in most instances. In Michigan the flow is very good, but they are suffering from a lack of bees, owing to heavy winter losses last year and depleted condition of colonies. Wisconsin claims the best flow they have had for two or three years, with an average of 100 pounds per colony, or better. Minnesota is good, although hardly up to the flow in Wisconsin. In Iowa the conditions are somewhat spotted, the eastern part of the State resembling Illinois, whereas the western part is having an extremely good honey flow. In the sweet clover sections the average is said, in some instances, to run to 200 pounds per colony. The flow is also good in Kansas and Nebraska, and Missouri is having a very good flow in some sections, also.

It is a little early to estimate the crop in the Mountain section, although Colorado will probably have its ordinary crop cut down to some extent by the ravages to the alfalfa. It seems that they will hardly harvest as much honey as last year. Montana claims about the same thing, with about 75 per cent of normal. Idaho reporters figure that they will average 100 pounds per colony before the season is over and are very well pleased. Washington will also have an excellent flow, while Oregon will hardly have as heavy a flow, averaging from 50 to 75 pounds per colony. In Arizona the flow has been excellent, and in New Mexico, in most sections, it has also been very good, although cut down to some extent by the extremely heavy rains and floods.

California, to be last considered, has very conflicting reports. One reporter states he will have 125 to 150 pounds per colony, and another at least 100 pounds. The average of the reports, however, would indicate that the flow is about two-thirds of last year and that the average will be from 60 to 75 pounds per colony.

HONEY SOLD

There has been very little honey of the new crop sold, except the orange honey in California and some from the southeast. California orange honey has been bringing from 19c to 21c and the honey from Florida, Georgia and other points has brought from 17c to 20c.

OFFERS MADE

A large number of the reporters have stated they have been offered uniformly a price of 19c for white extracted honey and about 16c to 17c for amber. These offers seem to be in the nature of feelers, as buyers are not yet active in trying to get honey.

PRICES EXPECTED

Not a reporter expected to get less than 20c per pound for white extracted honey, with comparatively a large number stating they would like to get 25c for extracted and 30c for comb. The strange thing about the reports is that the price expected on extracted and comb are so nearly the same.

We call attention to the excellent condition both in California, Colorado and Texas on honey prices, owing to the fact that the associations there are controlling a large part of the crop and handling the same so that the beekeepers will get the very best price obtainable. In Texas there was an inclination to throw the new honey on the market at once. This was averted by the association, and the honey has been going onto the market slowly, with the result that 50 per cent of the crop is already sold and the rest is moving excellently at very good prices, ranging from 16c to 21c for extracted.

Prices offered on California honey were, on July 8, as follows: Water white sage, 19½c; white sage, 19c; light amber sage, 18c; Hawaiian, 15½c. For opening prices these are considerably in advance of last year and would indicate that the associations are figuring on a better price for their members than a year ago.

In Colorado, of course, the association has not yet placed any prices on their stock, since the crop is not yet harvested. They will, however, as usual, get top-notch prices for their members.

The United States Department report is remarkable for one thing, and that is, that there is left but little honey in the large markets. Evidently the markets are pretty well cleaned up, owing to the shortage of sugar and the excellent demand for honey.

Sugar is still scarce, although getting more plentiful, and the wholesale price in New York has dropped from 28c to about 24c per pound.

THREE BAND ITALIANS
TESTED DISEASE RESISTORS

PRICES

	June 15 to July 15		
	1	6	12
Untested	$1.50	$8.00	$15.00
Select untested	1.75	9.00	16.00

	July 15 to Oct. 1			
	1	6	12	100
Untested	$1.30	$7.50	$13.50	$110.00
Select untested	1.60	8.00	14.00	115.00
Select tested, any time after June 20	3.00	16.00	29.00	
Select day-old virgins, after June 1	.60	3.50	6.50	50.00

D. A. DAVIS, Birmingham, Mich.
216 Greenwood

BARNES' Foot Power Machinery

Read what J. E. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS

Established 1885

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montg. Co., Mo.

ATTENTION, PACIFIC NORTHWEST BEEKEEPERS!

We handle a full line of supplies for beekeepers, including **Italian Queens.** Write us your requirements and for our Catalog A. It's **free.**

SPOKANE SEED CO.,
906 First Ave. Spokane, Wash.

WHEN THE BEES STING

YOU'LL NEED AN "IDEAL BEE VEIL"— TRUE TO ITS NAME

$1.60 POSTPAID IN U. S. A.

HONEY

Send us a sample of your extracted honey. We also buy comb honey. Tell us how much you have and what you want tor it. We pay the day shipment is received.

WAX—OLD COMB

We pay you the highest market price for rendered wax, less 5c per pound rendering charges. Our rendering process saves the last drop of wax for you. "Put your name on all packages."

THE FRED W. MUTH CO., CINCINNATI, OHIO

"The Busy Beemen"

Are You Losing a Single Pound of Fall Flow

Use Root Shallow Equipment and Save Money by Gathering the Late Crop

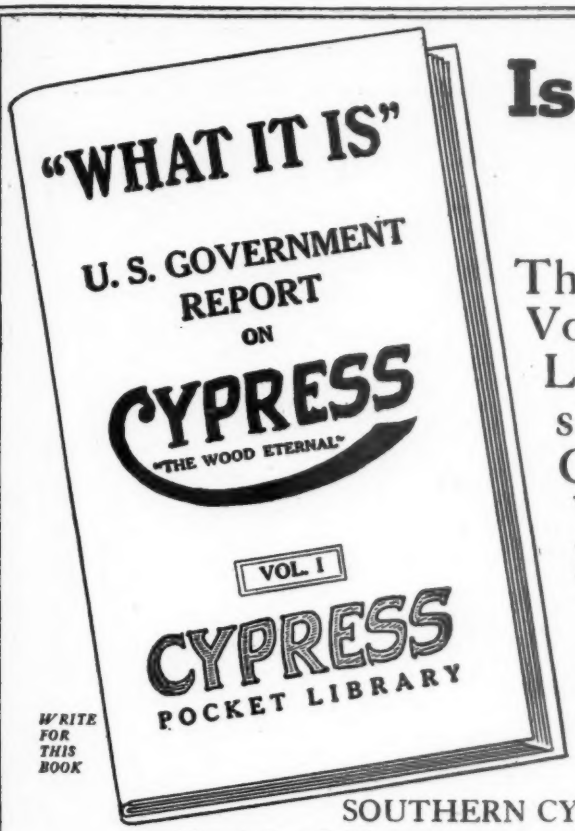
Are You Marketing Good Honey Well?

Use Root Cases and Cans and Make Money by Marketing your Crop in the Best

Our line of shallow equipment was designed to enable you to gather the maximum crop. Drop us a postal and let us tell you about it. We believe we can interest you.

Our shipping cases display your honey to the best advantage, and yet afford the greatest possible protection against breakage and mishap. You cannot make a mistake in ordering now. We also have a full line of bright new cans and flint glass jars. Let us quote on your needs along this line.

THE A. I. ROOT CO. OF IOWA COUNCIL BLUFFS, IOWA



WRITE FOR THIS BOOK

Is Uncle Sam's Word Good Enough?

Then Mr. Bee-man, just write for Volume I of the Cypress Pocket Library and read what our respected Uncle has to say about Cypress ("The Wood Eternal.") You'll then see why any bee-hive, or bottom or winter case not made of Cypress is not so good as it might be. 42 other volumes all free. The list is in Volume I. Write and it comes.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, *LET US KNOW IMMEDIATELY*

FOREHAND'S THREE BANDS

THE THRIFTY KIND

Twenty-eight years of select breeding brings these bees up to a standard surpassed by none, but superior to many.

Place your order now for August and September delivery. We have booked as many orders for pound bees as we can handle this season.

PRICES AFTER JUNE 1

	1	6	12	100 Each
Untested	$1.50	$ 7.50	$13.50	$1.00
Select Untested	1.75	9.00	16.50	1.25
Tested	2 50	13.00	24.50	2.00
Select Tested	4.00	22.00	41.50	3.35

No reduction in prices after July 1 as stated in circular.

W. J. FOREHAND & SONS, The Bee Men

Fort Deposit, Alabama

BEE SUPPLY PRICES

A FRANK TALK WITH BEEKEEPERS

No one likes high prices but the profiteer. We are all sick and tired and irritated by higher this, higher that and higher everything. We have all waited for the turning point when things would begin "going down." We as manufacturers of beekeepers' supplies, have hoped for this turning point as anxiously as any beekeeper possibly could. We have been encouraged by seeing some necessities, such as men's and women's clothing, going to lower levels, and have hoped to see lower prices reach to metal and lumber materials. We have expected the tide to turn in our field of metal and wood manufacture, hoping not to have to advance prices. So it is that we have made only a very few minor advances now for two years.

But the turning point of higher prices of materials does not come in our field, and is not in sight at this date, July 1, because the manufacturers of metals and lumber are today swamped with orders at prevailing high prices. These high prices are going to continue while the rush of orders continues—and there is no turning point in sight.

Prices asked today on pine lumber are more than double, and basswood three times as much as prices in effect two years ago. Except for the fact that we had a year's lumber supply purchased in advance we would have been compelled to advance prices a year ago for the past season.

Metal parts of our extractors, smokers, uncapping knives, queen excluders, etc., have increased from two to six times their former cost to us. Our labor cost has increased 60 per cent during the past two years.

We put these plain facts of our own manufacturing situation before our customers to explain the absolute necessity for advancing the prices of a considerable part of our bee supplies. It becomes necessary to do this if we are to continue to manufacture for the beekeepers without actual loss.

We say to our beekeeping friends and customers that we shall reduce what both they and ourselves regard as too high prices just as fast as the price of materials used in our manufacture may permit. We do not like high prices for the beekeeper any better than the beekeeper himself likes them.

ROOT QUEENS

Our queens are bred by as skillful and experienced queen-breeders as can be found in the United States. There are very few places where queens are reared under as favorable conditions as in our own Ohio queen-rearing yards in midsummer. The strain is proved and of the highest quality. We guarantee that better queens than ours cannot be bought anywhere. Prices are :

1 Untested Queen	$ 2.00	24 Untested Queens	$40.80
6 Untested Queens	11.40	48 Untested Queens	76.80
12 Untested Queens	21.60	100 Untested Queens and upwards—special prices quoted.	

Inquiries as to tested or breeding queens invited. The demand for these often exceeds our supply. So order well in advance.

Write or wire when deliveries are wanted. We are producing in large quantities this season, and with advanced information as to the wants of our customers we shall at times be able to quote unusually attractive prices on large quantities.

THE A. I. ROOT CO., Medina, O.